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In THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

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In MEADVILLE, *Pa.*

Located in the extreme Northwestern corner of Pennsylvania, Meadville is a city having a population of 19,354, and is the center of a rich agricultural district. Here is the home of Allegheny College, a College of Liberal Arts of high standing, founded in 1815. This city has an interesting historical background; its Sesqui-Centennial was celebrated in May of this year.

Meadville is also an important industrial center, which includes the plant of the American Viscose Corporation, world's largest manufacturer of rayon, and the three plants of Talon, Incorporated, world's largest manufacturer of the widely used slide fastener.

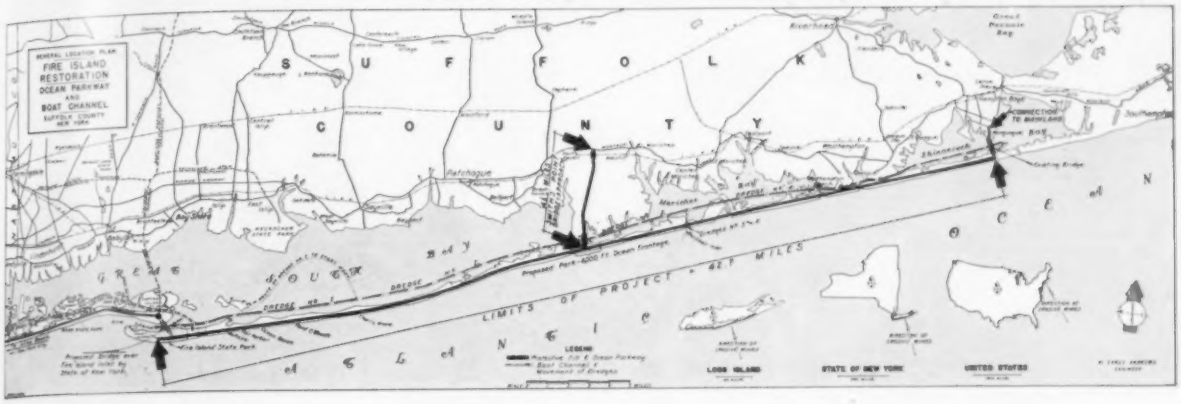
The first public water system was built in 1874 by a private company and was purchased by the City of Meadville in 1899. The water supply is from wells located one mile from the city and is unusual in quality as no treatment of any kind is required. The wells are in glacial gravel, two of them producing over 2000 G. P. M. each.

The system is 100% metered, Pittsburgh Water Meters being used, some of which have been in service for forty years. The Water Department operates entirely on its own revenues and is free from debt.

PITTSBURGH WATER METERS

When you write for that catalog, kindly mention THE AMERICAN CITY.

Ill Wind May Bring Good to Long Island


FIRE ISLAND RESTORATION OCEAN PARKWAY AND BOAT CHANNEL SUFFOLK COUNTY NEW YORK
SUFFOLK COUNTY
LIMITS OF PROJECT + 42.7 MILES
LONG ISLAND
STATE OF NEW YORK
UNITED STATES

42-Mile Waterfront Parkway Proposed

UNDER the vigorous leadership of Robert Moses, as President of the Long Island State Park Commission, there has already been submitted to the Board of Supervisors of Suffolk County, N. Y., a comprehensive plan for the restoration and protection of Fire Island—the narrow sand reef nearly 50 miles long between the ocean and the bays south of the Long Island mainland, which suffered serious damage in the recent hurricane.

Developed in some detail by W. Earle Andrews, based on his successful experience with shore-front problems as Deputy Chief Engineer of the Long Island State Park Commission and Superintendent at Jones Beach, the proposed solution would abandon what President Moses, in his letter of transmittal, describes as "the silly temporary, makeshift, haphazard brush and fence work now being done with relief and other forces."

Instead, the plan is "predicted on the acquisition of a fairly wide right-of-way for an ocean parkway and easements to spill over wide strips on both sides, for the benefit of the property owners and for the protection of the barrier beach. Every inch of this land must be acquired immediately by assessment and, of course, such assessments can be escaped by dedication. The cost of the improvement is proposed to be borne by the County and Federal Governments. It is essential that this improvement be accompanied by the proper zoning of the entire beach by the townships, so as to insure its residential and recreational character and so as to prevent dog stands, filling stations, billboards and other eyesores from following the improvement and ruining it."

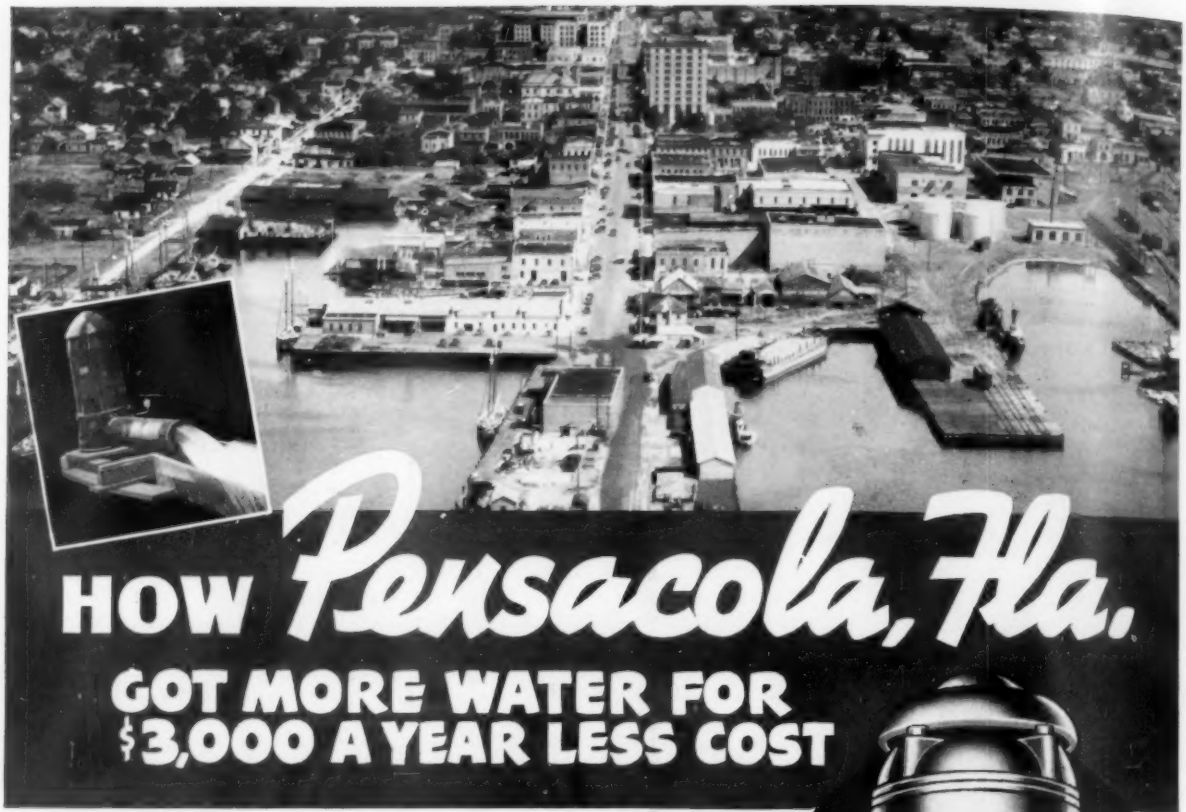
In Mr. Andrews' report, dated October 26, 1938, it is explained that the project consists of pumping 35,000,000 cubic yards of sand to form a continuous embankment 14½ feet high from the Coast Guard station on the west end of Fire Island to the Ponquoque Causeway. The sand fill will be level on top for a width of approximately 80 feet and slope away on each side at the rate of 1 foot in 30 feet, the approximate angle of natural repose of the material, which corresponds to the ocean beach. Cuts and depressions outside the limits of the parkway will be filled in the course of the operations. The material is to be dredged to form shallow bays behind the reef. The slopes of the fill will be further stabilized by planting with beach grass 1½ feet to 3 feet in height. A roadway pavement of reinforced concrete 8 inches thick and two lanes wide will cap the protective embankment and be flanked by tough turf shoulders 9 feet wide. Approximately forty underpasses under the pavement are proposed.

The cost of the project, including the Smith's Point Bridge, is estimated at $9,250,000.

AN AERIAL VIEW TAKEN AFTER HURRICANE OF SEPTEMBER 21, 1938, SHOWING DESTRUCTION OF A SECTION OF FIRE ISLAND OUTER BARRIER REEF. THE BRUSH FENCE SHOWN IN THE FOREGROUND ILLUSTRATES HOW NOT TO ATTEMPT RESTORATION.

AFTER THE HURRICANE—HOW NOT TO ATTACK THE PROBLEM.

ATTEMPTS AT BEACH PROTECTION ALONG THE NEW JERSEY COAST. IN SPITE OF STAGGERING COSTS OF CONSTRUCTION, REPLACEMENT AND MAINTENANCE, THESE STRUCTURES HAVE FAILED TO SOLVE THE PROBLEM OF EROSION.



HOW Pensacola, Fla. GOT MORE WATER FOR $3,000 A YEAR LESS COST

U. S. NAVY PHOTO—Courtesy Pensacola Municipal Adv. Board

OLD WELLS and out of date pumping equipment could not produce an adequate supply of water. Power cost was excessive. The City of Pensacola was growing rapidly. Mains were being extended. Something had to be done.

Layne engineers surveyed the situation. Their recommendations were accepted. The Layne-Central Company (one of the Layne & Bowler, Inc., affiliates) installed and equipped a 26 inch well that gave Pensacola 3,600,000 gallons of water per day. Power cost alone, saved over $3,000.00 a year. Another 26 inch Layne Well was installed to give them a 100 per cent "standby" supply of water. Thus they are not only saving money, but are getting more and better water. Both wells are gravel wall, underreamed type and concrete sealed from strainer to ground level against seepage and unwanted intermediate water strata.

Wherever you go, you will find Layne Wells and Pumps giving complete satisfaction to cities and industries of all sizes. For literature that fully explains their many fine features, address LAYNE & BOWLER, INC., Dept. B, Memphis, Tenn.

AFFILIATED COMPANIES

LAYNE-ARKANSAS CO., STUTTGART, ARK.
LAYNE-ATLANTIC CO. . . . NORFOLK, VA.
LAYNE-CENTRAL CO. . . MEMPHIS, TENN.
LAYNE-NORTHERN CO., MISHAWAKA, IND.
LAYNE-LOUISIANA CO. LAKE CHARLES, LA.
LAYNE-NEW YORK CO. . NEW YORK CITY. AND PITTSBURGH . . . . . PA.
LAYNE-NORTHWEST CO. MILWAUKEE, WIS.
LAYNE-OHIO CO. . . . COLUMBUS, OHIO
LAYNE-TEXAS CO. . . . HOUSTON AND DALLAS . . . . . TEXAS.
LAYNE-WESTERN CO., KANSAS CITY, MO. CHICAGO, ILL., MINNEAPOLIS, MINN. AND OMAHA . . . . . NEBRASKA.
LAYNE-BOWLER NEW ENGLAND COMPANY. BOSTON . . . . . MASSACHUSETTS.
INTERNATIONAL WATER SUPPLY, LTD., LONDON . . . . . ONTARIO, CANADA

LAYNE

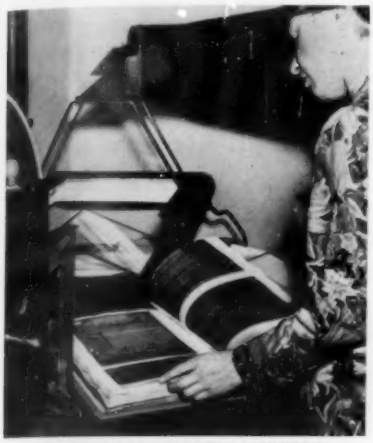
PUMPS & WELL WATER SYSTEMS

FOR MUNICIPALITIES • INDUSTRIES • RAILROADS • MINES AND IRRIGATION

Our Municipal Notebook

All Records Snapped by City Clerk

ALL documents and instruments handled through the office of the City Clerk of Lewiston, Maine, are recorded by a Dexigraph photostat machine in one-third the time it used to take, and without proof-reading.



COPYING CITY CLERK'S RECORDS

Photography is not new to recorders in certain of the larger counties; but now there is available a simple, speedy, economical photographic method for counties and city clerks with moderate demands and smaller budgets. Without previous experience, any member of the staff can produce perfect photographic copies. Equipped with a snap-shot speed lens and automatic shutter, Dexigraph copies can be photographed at the rate of several hundred per hour.

Developing is in accordance with simple instructions. The Lewiston equipment is known as a simple fixed-focus model, which reproduces full legal-size records on standard 9½ x 14-inch or 10 x 14-inch pages.

Water Heaters On at Off Peak

THE world's first installation of completely automatic carrier-current water-heater control now builds up the off-peak power load of the municipal electric-distribution system of Wisconsin Dells, Wis. All water heaters are connected until the load at the station rises to a figure where the overload contactor closes, and carrier controllers disconnect the water heaters. When the load drops below the predetermined figure, the water heaters are reconnected to the line. They are on from 19 to 22 hours per day, and off only during the peaks. This system will serve efficiently as few as 50 to 75 water heaters.

Eyesore Pictures Help Housing

A CAMERA contest on good and bad housing, conducted by the Washington Housing Association and the Public Library, was successful because of the preliminary groundwork and the close cooperation of the two agencies, as well as because of the interesting photographs (see the prize-winning picture on page 67). Letters and announcements were sent by the Association to schools, by permission of the Board of Education; to all stores selling camera supplies; to organizations like the Y. M. C. A. and Y. W. C. A. Cooperation of the newspapers was gained in photographing prominent young people looking at the displays in the libraries. Captions for the news pictures were provided, emphasizing housing as well as the photograph content. The central Public Library and its branches provided mimeographed "rules" for contestants and instructed the librarians in answering inquiries. This contest has stimulated photographic displays in newspapers and for various exhibits.

85 Cities Operate Parking Meters

WHILE parking controversies continue to disturb the peace of big cities, 85 cities, large and small, have quietly and efficiently installed parking meters, and are practically unanimous in testifying to the helpfulness of these meters in solving their parking problem.

"The people of our town are well pleased with the meters."

T. H. HACKNEY,
Police Chief, Abilene, Texas.

"The all-day parker is no longer a problem."—RAYMOND D. THORP,
Chief of Police, Austin, Texas.

"Parking meters have regulated parking."—N. D. HUIE, JR.,
Captain of Police in Charge of Traffic, Corpus Christi, Texas.

"The all-day parker is now on public or private parking lots, and it was surprising how many parkers could find places to park besides Main Street."

A. STORR FITZ,
Borough Manager, Waynesboro, Pa.

"Meters have greatly reduced traffic congestion."—F. J. ELKHART,
Captain of Traffic, Wilkes-Barre, Pa.

Asked the question, "Along what lines do you feel your parking meter might be improved?", R. J. Christ, Secretary to the Mayor of Zanesville, replies, "By installing more meters."

24,610 PARKING METERS IN 81 CITIES IN 26 STATES

Abilene, Texas	468	Mobile, Ala.	60
Anderson, Ind.	387	Monroe, Mich.	339
Atlantic City, N. J.	911	Montclair, N. J.	340
Auburn, N. Y.	490	Mullens, W. Va.	126
Austin, Texas	525	Muncie, Ind.	339
Bakersfield, Calif.	325	New Castle, Pa.	700
Beckley, W. Va.	200	Norfolk, Va.	250
Bluefield, W. Va.	183	Oil City, Pa.	298
Bradenton, Fla.	12	Oklahoma City, Okla.	522
Bremerton, Wash.	...	Omaha, Nebr.	1,000
Bristol, Va.	100	Oneonta, N. Y.	75
Butler, Pa.	221	Passaic, N. J.	425
Carnegie, Pa.	300	Paterson, N. J.	880
Clarksburg, W. Va.	269	Petersburg, Va.	39
Clearwater, Fla.	25	Phoenix, Ariz.	900
Corpus Christi, Texas	481	Pittston, Pa.	250
Cumberland, Md.	225	Pocatello, Idaho	162
Dallas, Texas	1,500	Ponca City, Okla.	32
Duluth, Mich.	180	Portland, Ore.	1,438
Elkins, W. Va.	110	Providence, R. I.	1,250
El Paso, Texas	627	Roanoke, Va.	200
Fairmont, W. Va.	115	St. Petersburg, Fla.	150
Fayetteville, W. Va.	66	Salisbury, Md.	125
Fort Worth, Texas	1,127	San Antonio, Texas	1,500
Glens Falls, N. Y.	263	Scranton, Pa.	900
Grafton, W. Va.	113	Sharon, Pa.	239
Grand Rapids, Mich.	750	Shenandoah, Pa.	414
Greenville, Pa.	117	Sioux City, Iowa	700
Hagerstown, Md.	114	State College, Pa.	30
Harrisburg, Pa.	728	Toledo, Ohio	1,000
Hot Springs, Ark.	200	Topeka, Kans.	270
Houston, Texas	2,075	Tyler, Texas	363
Independence, Mo.	80	Uniontown, Pa.	492
Kansas City, Mo.	1,198	Waco, Texas	439
Knoxville, Tenn.	200	Watertown, N. Y.	344
Lewistown, Pa.	225	Waynesboro, Pa.	100
Long Beach, Calif.	900	White Plains, N. Y.	260
Lubbock, Texas	617	Wichita Falls, Texas	429
Marcus Hook, Pa.	150	Wilkes-Barre, Pa.	723
Meadville, Pa.	117	Williamson, W. Va.	35
Mexico City, Mex.	320	Wilmington, Del.	269
Miami, Fla.	410	Youngstown, Ohio	570
		Zanesville, Ohio	117

WAYNESBORO, PA., POPULATION 10,000, OPERATES 100 PARKING METERS

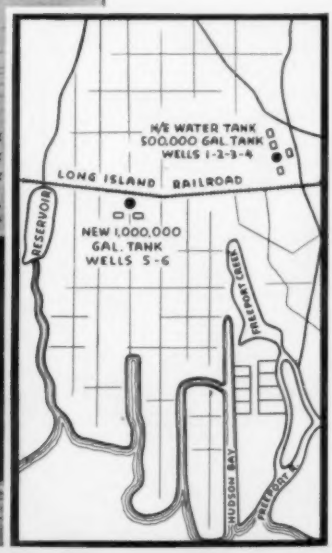
A Modern Landmark

FOR FREEPORT, LONG ISLAND

THE new one million-gallon Horton elevated storage tank shown at the left offers a good example of the pleasing results that can be obtained with the radial-cone bottom design. Because of its modern, striking appearance and impressive size, the tank has become a landmark for the city of Freeport, Long Island, N. Y.

Here, as elsewhere, domestic and industrial consumers alike value highly the convenience, uniformity and dependability of the improved water service that is made possible by an adequate gravity supply.

Horton Elevated Tanks are offered in a complete range of sizes, designed to combine pleasing appearance with sound engineering practice. For complete information, address our nearest office.



Illustrated at the left is a map of the city of Freeport, Long Island, N. Y., showing the location of the new Horton elevated storage tank and the six wells which are the source of water supply.

CHICAGO BRIDGE & IRON COMPANY

Chicago	2127 Old Colony Bldg.	Philadelphia	1616 "1700" Walnut St. Bldg.	San Francisco	1033 Rialto Bldg.
New York	3308-165 Broadway Bldg.	Boston	1501 Consolidated Gas Bldg.	Houston	2919 Main Street
Cleveland	2236 Rockefeller Bldg.	Birmingham	1502 N. Fiftieth Street	Tulsa	1625 Hunt Bldg.
Detroit	1501 Lafayette Bldg.	Dallas	1406 Liberty Bank Bldg.	Los Angeles	1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water Supply—Plumbing—Water Rates

Cross-Connections and Back-Siphonage Ills

A COMPREHENSIVE report entitled "Cross-Connections and Back-Siphonage Research" telling how back-siphonage may cause pollution of the water supply of a building and how it can be prevented, has been issued by the Institute of Hyd.aulic Research of the State University of Iowa and reprinted as Technical Bulletin No. 1 for the National Association of Master Plumbers of the United States, Inc. This report is a significant step in the protection of public health against the hazards of water pollution within a building.

The research work which forms the basis for the report was undertaken as a result of the amebic dysentery epidemic in Chicago in 1933. This epidemic caused by defects in the plumbing equipment in two Chicago hotels resulted in nearly 100 deaths and the illness of more than 1,000 persons. The epidemic focused the attention of the plumbing industry and public health officials on the need for an extensive series of tests and studies leading to positive means for the protection of the public against the spread of water-borne diseases by defective plumbing.

The report has two main divisions. The first part is a summary of conclusions and recommendations relating to the investigative work, and the second part, which constitutes the major portion of the report, consists of ten chapters in each of which an important feature of the back-siphonage and cross-connection problem is thoroughly discussed. In discussing the fundamentals of back-siphonage, the report explains that: "Cross-connections between pure and impure water sources may be of three types: (1) a connection where pure and impure water is separated by a valve or valves, and the impure water pressure is permanently higher; (2) a connection where impure water may enter the pure supply when the pressure on the pure water is temporarily reduced below the pressure or gravity head of the impure source; (3) a connection which permits pollution to enter when the pure water pressure drops below atmospheric. This process of water pollution is known as back-siphonage."

In the chapter on "Hydraulics and Pneumatics of Back-Siphonage," the report points out that "a very high vacuum in a small volume of piping, as far as back-siphonage is concerned, may be as dangerous as relatively low vacuum in a large volume of piping.

"The most common vacuum-forming conditions are: (1) a water column in a riser drops and simultaneously air enters through some opening; (2) no opening exists during the time that a water column over 33 feet is dropping whereby a perfect vacuum is formed in the piping above the water; (3) a vacuum is produced at some point due to the aspirating effect of high-velocity water or excessive friction loss in a downfeed piping system. In this case the pipe where the vacuum occurs is full of water."

In the chapter on "Bacteriological Considerations" the report states: "The entrance of water-borne disease organisms is of course the greatest danger associated with back-siphonage. The most common of such diseases are typhoid fever, bacillary dysentery, amebic dysentery, and other gastro-enteritis disturbances. The normal habitat of the organisms causing these diseases is sewage-polluted water. The larger the quantity of such infected water that is sucked back, the more dangerous is the condition produced. Sufficient amounts of residual chlorine in the pure water will usually destroy almost all of the water-borne disease organisms except that producing amebic dysentery. The organism producing amebic dysentery, that is, while in its cyst stage, cannot be killed except by complete drying, boiling, or by use of a solution of bichloride of mercury.

"The water-borne disease organisms may be carried back into the water pipes when a vacuum exists therein, not only by return of infected liquid, but also by high-velocity air carrying back infected liquid in the form of spray or droplets. The entrance into water pipes of infected liquid whether in large quantities or in the form of a spray and droplets must be prevented. However, since the flow of air cannot be entirely prevented, therefore it must be so restricted in its velocity as to make it impossible for it to pick up and carry back into the pipes infected sprays of water."

Other chapters cover an analysis of suggested solutions to the back-siphonage problem, a discussion of water inlets above the maximum water level and air-gap siphonage, the vacuum-breaking principle of back-siphonage prevention, special water uses, apparatus and equipment, cross-connections in air-conditioning equipment, proper design of water-supply piping in plumbing systems, and then, after suggesting certain regulations regarding pipe sizing, rates of flow to fixtures, and location of water pipes, the report concludes with the following statement:

"No amount of regulation will ever insure proper water-piping design and installation of all the great variety of water-piping systems. To a great extent dependence for proper installations must be placed on the designer and contractor. It is therefore imperative that all water piping to all the individual fixtures and units of equipment shall be installed by persons who possess, and who are required to possess by law, a knowledge of the flow of fluids and of the action of back-siphonage, and an understanding of the dangers of bacterial infection of the water supply. The proper and correct installation of no other part of the plumbing system is so important to the preservation of public health as is that of the water-supply piping."

Copies of the complete report may be secured from the National Association of Master Plumbers, Edmonds Building, Washington, D. C.

Water for the House Just Across the Line

THE question is frequently asked whether a city in extending water service to suburban districts should supply water at the same rate paid by residents inside the city. In a report recently made to the American Water Works Association, Thad M. Erwin, of the Los Angeles, Calif., Water Department, gives a definite negative answer and goes on to say that some cities are charging too low rates for non-municipal service. Los Angeles has established special rates that are higher than those paid by residents of the city.

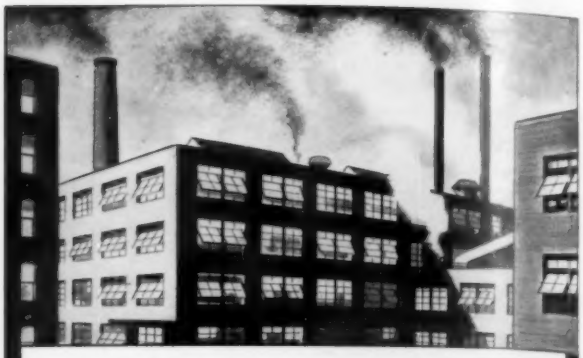
With the development of automotive transportation, many families have migrated to the outskirts of cities, both large and small, where there is not only plenty of light and air, but also lower taxes. These families, residing on the fringe of municipalities, desire the comforts found in cities, chief of which is an ample supply of pure, safe water. The nearby suburban residents usually try to be connected with the city supply, and often they wish to pay the same rates as water users within the city.

Mr. Erwin makes the point that citizens within the city limits were taxed for payment on bonds to build the system, while those outside the city escaped this tax, and for this reason the consumer outside the city should pay the higher rate. This brings up the point that a water utility should be self-sustaining and pay all the interest and principal of its bonds itself without resorting to taxation. On the other hand, the water utility has the city standing behind it if at any time it fails to meet payment on bonds. It is this readiness of the city to back its water utility that is the fundamental reason why the man who lives outside the corporate limits and therefore pays no city taxes should pay an additional charge for water furnished to outsiders.

Los Angeles delivers water to consumers outside the corporate limits where the property is contiguous and the mains already exist. Such consumers are charged the regular street-main assessment and the service connection charge, and they pay a special county water rate of 30 cents per 100 cubic feet for the first 500 cubic feet, and 20 cents per 100 for all water consumed in excess of that amount. This county rate, higher than the rate for consumers in the city, is intended to cover fully the direct and indirect costs of water service to suburban dwellers.

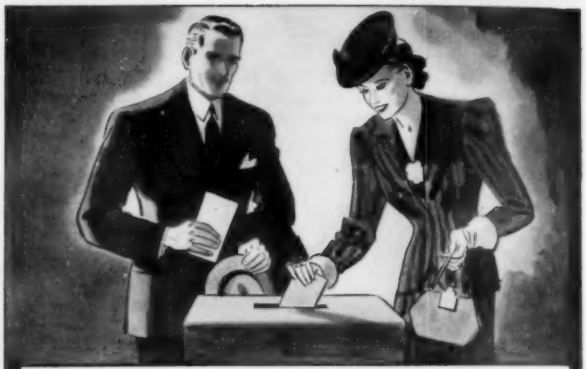
Soft, Iron-Free Water

Every city needs it • • •
Modern cities have it!



PRESENT INDUSTRIES HOPE FOR IT—Clean, softened, iron-free water is a vital necessity to most modern industrial plants. Many power plants, paper companies, textile mills, countless others, say they just cannot get along without it. In many cases, where Permutit municipal water conditioning goes in, companies give up private supplies, switch to city water, increase their savings . . . increase your revenue.

NEW INDUSTRIES LOOK FOR IT—What a prize for the lucky city that wins new industries! Relief from relief problems! More paycheck money for merchants! Less burden on taxpayers! But how can you attract that new factory? Often softened, iron-free water is the deciding factor. Investigate Permutit water conditioning today.



TAXPAYERS VOTE FOR IT—And in more ways than one! For Permutit softened water is grand for bathing. Wonderful for cooking. Speeds up washing, cleaning. And nation-wide tests show that softening water saves an average family $25.00 or more per year . . . in soap, fuel, clothing and plumbing repair bills! Send for free booklets today.

Yes, Permutit Water Conditioning Can Pay You Handsomely!

There's *one* municipal improvement that reaches into every home, every business . . . gives savings and satisfaction to every taxpayer. It's Permutit water conditioning.

The Permutit Company is the world's largest maker of all types of water conditioning equipment. Permutit stands *ready* to make free water analyses, stands *equipped* to consult with your experts or engineers, stands *in back* of every Permutit installation. Send for free booklets today . . . there's no obligation. Address The Permutit Company, Dept. G3, 330 W. 42nd St., New York.

Permutit
The Water Conditioning Headquarters
over 25 years

Street Cleaning and Refuse Disposal

THE "PHOTO TO THE EDITOR"

Even in Utopia

UNDER this title an editorial in *The Evening Sun*, Baltimore, Md., discusses the question of the removal of rubbish, based on a letter to the Editor of *The Evening Sun* and a photograph which was submitted with it. We first reproduce the photograph and the letter, and then the editorial:

To the Editor of *The Evening Sun*—Sir:

The enclosed picture will show you what I saw when I looked into the alley behind the 500 block Hoffman Street. You would hardly believe it, but there is a cement alley beneath this trash. We are only too willing to clean the alley in the rear of our property, but what is the use of our cleaning in the rear of our property if the other property owners are not made to keep their share of the alley clean?

(Signed) G. W. FREDERICK,
Baltimore, Md.

The "picture to the editor" which is printed in The Forum today brings up a point that is frequently forgotten in these days of blighted areas, slum clearance and million-dollar housing projects. It is this: that even in Utopia trash cans will be necessary and will have to be emptied regularly.

The swellest residential district imaginable can easily be converted into a blighted area by the simple expedient of covering the streets and sidewalks a foot deep with old automobile tires, empty tomato cans, soggy old mattresses filled with vermin, and putrefying garbage.

True, in a swell residential district the rich inhabitants would probably rise from their velvet couches and stop dreaming of silver and gold long enough to see that the proper authorities are made to clean up the mess. Their residential district would then cease forthwith to be blighted.

The principle holds true for poorer residential districts. Grant the crying need for better housing. Still it cannot be denied that the housing in our most-blighted areas would be far better if it were not surrounded by such scenery as that which Mr. Frederick's picture shows. Mr. Frederick suggests that the tenants in such dwelling areas are at fault. To a considerable extent, they are. But did you ever try to dispose of an old mattress single-handed? Taxpayers pay generously to support municipal services dedicated to the task of getting rid of a city's refuse. In view of this, it is fair to say that the tenants are not exclusively at fault for such conditions as the picture shows.

America is not going to be made over in a day. Assume, for Baltimore, the most ambitious Federal housing program conceivable. Still, most of Baltimore's homes will still have to be lived in. And in view of this it might not be such a bad idea to see that at least the *removable* blight is removed.

As an evidence of the value of photographs, the day following the publication of the photograph of the unkempt alley in *The Evening Sun* of Baltimore, the alley was cleaned up by the city.

Safe Shoes for Refuse Collectors

A FEW weeks ago we visited a New England city where householders are required to separate combustible and non-combustible refuse so that the new incinerator may operate to maximum efficiency. The collection trucks are divided into two bins, the larger of which takes the combustible refuse and the forward compartment the tin cans and bottles.

The collection crew consists of a truck driver, two men on the ground, and one man who usually stands in the compartment of non-combustibles dumping the various containers handed up to him by the two ground men.

The Superintendent of the Department of Public Works realized full well that the character of the work would naturally lead the men to use their oldest wearing apparel. Old shoes usually have thin soles and perhaps some breaks in the sides. Soon after this type of collection started, there were several cases of cuts in the feet of the men working in the trucks, so the city decided it would be much cheaper to furnish the men with foundry shoes with a steel inner sole and a steel toe cap. This is distinctly a safety measure and also is much cheaper for the city than the doctors' bills. T. R. K.

Street Cleaning in Washington, D. C.

IN the District of Columbia there are 826.26 miles of streets, of which 637 miles are of the permanent hard-surface type on the basis of 30-foot average width. Of these, 559 miles are cleaned by motor flushers at frequencies varying from daily in the more important thoroughfares and business streets to once in ten days in outlying residential sections. The cost of flushing is $1.64 per mile, or $0.093 per thousand square yards.

A total of 106,288,875 gallons of water having a total value of $9,950 was used for flushing in the fiscal year of 1937, but no charge is made to the City Refuse Department for water used for street cleaning. When asked what effect street flushing has on the frequency of catch-basin and sewer cleaning, W. A. Xanten, Supervisor of City Refuse, who is in charge of street cleaning, reported that he had found no evidence that flushing throws any abnormal load on catch-basin cleaning.* During the fiscal year 1937 the twelve flushers which were used actively consumed 52,468 gallons of gasoline at a total cost of $3,830.32, and used 3,144 quarts of oil at a cost of $124.43. The repairs cost $1,318.30 for material and $10,172.27 for labor, making the total cost of operation and repairs $15,445.32.

The flusher fleet consists of one Federal, one White, three International, one Sterling and three Fisher trucks with Municipal Supply Co. South Bend flushers; one International, one Brockway and one G.M.C.; and one Fisher, two Corbitt and five Mack trucks with flushers fabricated in the City Refuse Department shops.

* However, flushing in Washington is a supplemental cleaning, and the greater portion of street dirt has been removed before a street is flushed.

AN RD 6 WITH BULLDOZER MAKES THE ROUNDS OF THE CITY DUMPS IN BRIDGEPORT, CONN., AND KEEPS THEM IN TRIM

WINTER IS COMING

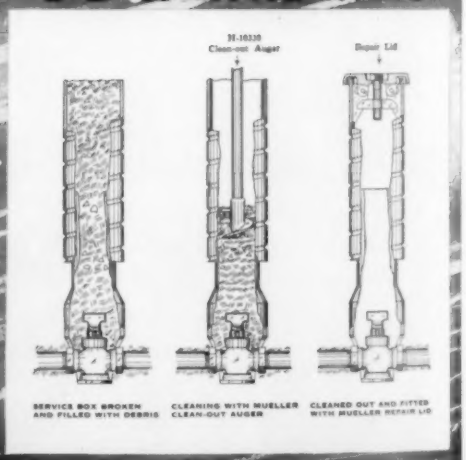
FIX UP THOSE SERVICE BOXES NOW!

It's easy to fix those damaged Service Boxes and fix them better than new with Mueller Service Box Repair Lids and the Mueller Clean-out Auger.

Mueller makes two styles of repair lids, for new style Buffalo Boxes and for old style Buffalo Boxes, the only difference being that the new style fits inside the shaft while the old style fits over the outside. No matter if your boxes have lost lids, broken lugs, or damaged tops, Mueller Repair Lids provide a means of supplying a top.

Don't wait until winter sets in. Check your requirements and send us your order now.

DO IT THIS WAY


H-10330
Clean-out Auger
Repair Lid
SERVICE BOX BROKEN AND FILLED WITH DEBRIS
CLEANING WITH MUELLER CLEAN-OUT AUGER
CLEANED OUT AND FITTED WITH MUELLER REPAIR LID

MUELLER CO.

DECATUR, ILLINOIS

Good Health for the Taxpayer

The Cost of Health in American Cities

STUDIES of the American Public Health Association Committee on Administrative Practice have indicated that the range of cost of an adequate community health program is from approximately $2.00 to $2.50 per capita. In the Monthly Bulletin of the Connecticut State Department of Health the Department reports that there is but one Connecticut town whose official appropriation comes within this range. Greenwich, Conn., recipient of the United States Chamber of Commerce award for its population group in the Intercity Health Conservation Contests of 1936 and 1937, spends $2.48 per capita. Since this community endeavors to make itself desirable as a place of residence for individuals who carry on business in New York City, it has proved wise economy to provide effective health protection and a sanitary environment which is an attraction to industry as well as to private home owners.

Since the cost of $2.00 to $2.50 per capita considered necessary for public health includes money spent by voluntary agencies, one would expect that official community expenditures should reach at least $1.00 per capita simply to provide the foundation for a health program, communicable disease control, tuberculosis control, syphilis control, supervision of sanitation, milk and water supplies.

That some Connecticut communities are unaware of the opportunities for better health is shown by the table of 1937 local health expenditures below. The towns have been grouped on a basis of population, and of the average sums paid health officers in fees, expenses and computed salary as well as the average per capita cost of public health. In calculating the total official expenditure for health, the figures given by the health officers include the appropriation for public health programs in the schools and appropriations paid by the communities to voluntary nursing associations. Expenditures for garbage collection and disposal are not included, because these are now considered as belonging to some other local department than public health.

1937 LOCAL HEALTH EXPENDITURES

Population Group	Average Health Officer Fees or Salary	Average Per Capita Health Appropriation
Under 1,000	$42.63	$.45
1,000 to 5,000	261.57	.43
5,000 to 20,000	810.07	.25
20,000 to 50,000	2,055.62	.61
50,000 and over	5,710.00	.80

It is obvious that local health appropriations are too inadequate even in some of the large cities to make effective use of the newer knowledge for health promotion. It is frequently stated that public health is purchasable, but many town officials still do not realize the rapid strides of medical and sanitary science in recent years.

It may be argued that the larger cities necessarily must spend more for health because thickly populated centers make disease transmission easy. As a matter of fact, many can remember when our cities actually were much more unhealthy than our smaller towns. That the expenditures for public health do pay dividends, however, is shown by the 1937 death rates of these cities, which are a large factor in maintaining Connecticut's low mortality rate. These six cities of 50,000 population and over, spending an average of 80 cents per capita for health, had an average death rate in 1937 of 9.8 per thousand population, which compares favorably with the state rate of 9.9 for the same year. On the other hand, the 31 towns in the 5,000 to 20,000 population group, spending 25 cents per capita, had an average death rate of 10.5 per thousand in 1937.

—From an article, "What Does Your Health Department Cost?", by F. M. Foote, in the May, 1938, issue of the *Connecticut Monthly Health Bulletin.*

How Many Bathers in a Pool?

THERE are various methods of estimating the number of bathers who can be accommodated at one time in a swimming pool. The Illinois Department of Health believes that the closest standard method is the Wayne Becker formula, in which the bathing load is equal to 3.84 times the capacity of the pool in gallons divided by the turnover in hours to the third power (cubed). In place of the constant 3.84, an arbitrary multiple M which takes into consideration the special conditions at various types of pools is recommended by A. C. Baxter, M.D., Acting Director of the Illinois Department of Public Health, as follows:

Arbitrary multiples:	*M*
Indoor pool (males only) nude bathing, men wear caps	6.4
Indoor pool (females) satisfactory suits, all wear caps	5.0
Indoor pool (mixed sexes) controlled suits (regulation) (women and girls wear caps)	4.5
Indoor pool (mixed sexes) no suit control	3.0
Outdoor pool (controlled suits—regulations) women wear caps	3.0
Outdoor pool (no suit control) mixed sexes, women wear caps	2.0

Additional factors used in arriving at multiple for any particular pool:

For adequate suit disinfection, add 0.5-point.
For inadequate walk area, deduct 0.5-point.
Where bathing load is well distributed, pool by classes, platoons, groups, for definite period, etc., add 0.5-point.
Where patronage is limited to groups living under conditions where health control is practiced, add 1.0 point.
Pools in which disinfection equipment is maximum, add 1.0 point.
Pools with inadequate disinfection, deduct 1.0 point.

Thus the Illinois formula for the daily maximum bathing load determinations is:

$$\text{Bathing Load} = \frac{\text{Gallons} \times M}{\text{Turnover}^3}$$

Sulphur in City Air Not a Health Hazard

THE results of a 15-month survey to determine the average amounts of sulphur gases in the air of American cities, long a subject of speculation, have been announced by the Air Hygiene Foundation of America, Inc., and Mellon Institute, of Pittsburgh, Pa. The average amounts of sulphur fumes found in 25 cities studied were comparatively small.

More than 50,000 separate air tests were made by six chemists driving a fleet of cars equipped as traveling laboratories. They canvassed industrial and residential centers throughout the East, South and Mid-West, from August, 1936, to October, 1937. Most of the tests, covering all hours of day and night and all seasons of the year, were made in five metropolitan districts. The five, in order of their sulphur dioxide pollution, are given in the table below. The figures indicate the parts of sulphur dioxide per million parts of air:

City	Within 15-Mile Radius of Center of City: Average	Maximum
St. Louis—East St. Louis	.128	2.266
Pittsburgh	.057	.897
Detroit	.028	.396
Philadelphia—Camden	.027	.424
Washington	.009	.290

Those connected with the investigation point out that these figures are of no significance from a public health standpoint. That is, in the concentrations found the contaminants do not exert harmful physiological effects.

The survey showed that home fires are among the largest contributors to sulphur pollution, particularly in districts using coal of high sulphur content. The type of coal burned in a locality was mirrored in the results of the study. The fuel factor also explains why sulphur pollution in most districts was approximately 50 per cent higher in the heating season than in the summer months. Some industrial operations also discharge sulphur fumes unless properly safeguarded.

A close relationship was found between wind velocity and the amount of sulphur dioxide in the air. The higher the wind, the cleaner the air. Fogs catch and store up the sulphur fumes. Some of the highest concentrations were noted on foggy nights.

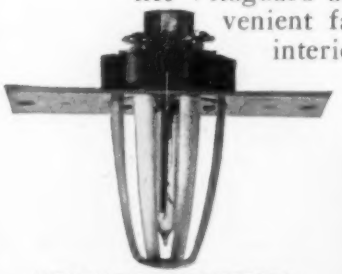
Remember Always!
Public Health Is Purchasable.

GAMEWELL FIRE ALARM SYSTEMS

— *Protect Earnings* —

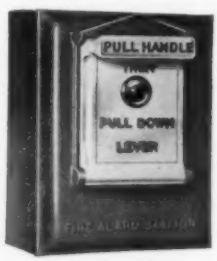
Earnings depend upon production. Fire interrupts the continuity of business and is reflected in the loss of uninsurable values far greater than the replaceable physical values destroyed. *Delays* in *discovery* and *announcement* — the principal causes of large Fire Losses—are minimized by Gamewell Fire Alarm Systems.

The Vitaguard Fire Alarm System in addition to facilities for manual operation embraces also the automatic fire detecting feature which discovers Fire in its incipiency and automatically announces the location. For the smaller communities Vitaguard affords ideal public fire alarm protection with convenient facilities for extending the protection to the interior of private properties and institutions.



AUTOMATIC FIRE DETECTOR
TYPE SF-4

AUTOMATIC FIRE DETECTOR
SPRINK-LA-STAT



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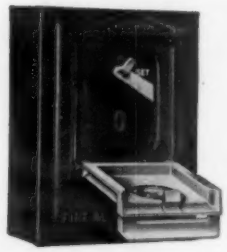

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Union Pacific RR. Co.
General Electric Co.
Westinghouse Electric & Mfg. Co.
American Steel & Wire Co.
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Youngstown Sheet & Tube Co.
U. S. Government—66 properties
American Smelting & Refining Co.
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Simplicity, flexibility, ruggedness, and reliability are dominant characteristics of the Vitaguard Fire Alarm System. Catalog upon application.

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Specialists in Public Safety

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2000 Municipalities

Public Safety

Shall Cities Manufacture?

A PITTSBURGH fireman has devised a warning signal light which is approved by Fire Chief Nicholas A. Phelan and Safety Director George E. A. Fairley. The city will manufacture these and install them on all the 91 city fire vehicles. The device consists of a circular panel on which are mounted six battery-operated lights which blink on and off, giving a rotating effect.

According to *The Pittsburgh Press*:

"Fireman Knipp observed that on several of Pittsburgh's fire trucks signal lights were installed in back of the driver's seat to warn motorists that the truck was approaching. Mr. Knipp started experimenting a year ago, and he says: 'I give the credit to the other boys who helped me. It's not really an invention anyway—just an improvement.'"

Good Deeds With Adequate Equipment

THE Kenosha Rescue Squad, sponsored by local Red Cross and Boy Scouts, has a Dodge 1-ton panel truck (front and side shown below), with emergency apparatus, including a 1½-kw Homelite portable floodlighting plant. It has been used at scores of automobile accidents, drownings, suffocations, electrical accidents and fires, as well as picnics, air meets, parades, and many celebrations, all in cooperation with the Police, Fire and Sheriff's Departments. Not long ago, a plane hit a high-tension line, putting Kenosha and Racine in darkness. The rescue truck was driven to the scene, where light was furnished by the Homelite generator for five hours. Peter Pirsch Co. equipped the truck with special lockers, rear step; 20-ton hydraulic jack; soda-acid, dew gas, and Pyrene extinguishers; Federal siren; Mars light, gas masks and Crouse-Hinds searchlight and floodlights. The Corps, known as the Boy Scout Leaders Red Cross First Aid Corps, also operates a Scoville-Streeter ambulance and a convertible Nash equipped with an Arntzen stretcher.

HOWARD A. GATLEY,
Scout Executive, Kenosha, Wis.

Fire Alarms Broadcast to Fire Houses

ALL fire calls received in the main control station of the Poughkeepsie fire alarm headquarters are broadcast to the fire houses. The operator first pushes an oscillator which gives a high-pitched whistle as an attention signal to all stations, including an adjacent village; then the operator tells the companies what to do. The system is also connected to Police Headquarters. Our complete Gamewell fire-alarm system has 16 circuits with 150 boxes, all having the four-number system.

CHRIS W. NOLL,
Chief, Fire Department, Poughkeepsie, N. Y.

Courtesy Wholesale Radio Service Co., New York

POUGHKEEPSIE FIRE-ALARM STATION
Left to right—John A. Beck, Chief Noll, George Murphy

Zanesville Likes Parking Meters

OUR 177 Dual Automatic parking meters, installed in August, 1938, are exceeding our anticipations by at least 50 per cent. They have reduced congestion, have helped the city's coffers, and have brought general satisfaction to our people. We expected a tough fight for a month or so selling them to our citizens, but today we feel that 90 per cent of the people are for them.

TOM V. MOOREHEAD,
Mayor, Zanesville, Ohio.

THE MARKERS TEND TO KEEP PEDESTRIAN TRAFFIC WITHIN SAFETY LINES

In Philadelphia, 100 of these markers were installed a year ago on a heavy-traffic downtown intersection, and are in very good condition. New York City recently installed 100 of them. They are sold by Modern Markers, Inc., Providence, Rhode Island

White Rubber Markers Liked in Jersey City

RUBBER composition traffic markers have been installed upon the Hudson County Boulevard in the vicinity of Journal Square, Jersey City, by Farrell's Safety Road Markers of New Jersey, Jersey City. The markers have given very satisfactory service to date.

The markers are easily discernible and tend to keep pedestrian traffic within the safety lines. Our inspection has always found them to maintain their color, and it is our belief that they are apparently kept clean through a sort of squeegee action of the tires in passing over the markers. Another good feature is the interlocking device of the marker with the road surface, permitting traffic to flow over them immediately after their installation.

It is our intention in the future to install more of these markers, for we feel that they not only present the ultimate in road marking but, aside from the original expense, will represent a great saving to our Commission over a period of years, completely eliminating the need for the use of traffic paints.

HARRY W. VANDERBACH,
President, Boulevard Commission, Hudson County, Jersey City, N. J.

The Icy Pavement Problem

PUBLIC OFFICIALS FIND REAL SAFETY AND NEW ECONOMY IN MAKING ICY PAVEMENTS BARE BY A CORRECT USE OF

INTERNATIONAL ROCK SALT

MORE AND MORE each year, the public demands safe roads and streets for winter driving. More each year, public officials are making progress toward the true winter safety.

The first step was to use abrasives alone—helpful so long as they remained on the ice. The next step, which is the popular method used today, is to imbed grits in ice and make an "anti-skid" surface. Here Rock Salt has proved most effective. Rock Salt *is* an abrasive. Its high melting power imbeds more grits faster and holds them longer. It is also the lowest priced chemical for that purpose.

For complete safety, experts have developed methods of making icy pavements bare with Rock Salt. Properly applied, Rock Salt prevents ice from forming or cuts through and honeycombs ice so that it is crushed by traffic and easily removed. It eliminates the cost of buying, treating, storing and applying abrasives, and the cost of removing them from streets and sewers later. It saves more lives and property damage, so that it is most economical in the long run, to have real winter safety from bare streets.

International Salt Company, Inc., maintains a complete Research Department and a Road Engineering Department. Both have worked in close co-operation with street and road officials for many years. Modern methods for using Rock Salt have been proven by actual and practical tests. All this long and wide experience is offered at no cost or obligation to street and highway departments, through the International Salt Advisory Service. Ask for any information about the methods of ice control required by local conditions and circumstances. Write for the book, "Make Icy Pavements Safe."

INTERNATIONAL SALT COMPANY, Inc.
SCRANTON, PA. *NEW YORK, N. Y.*

STATE AFTER STATE SWELLS THE TOTAL!

● Last winter, International Salt Company, Inc., tried to get some clue to the amount of death and destruction caused by icy streets and roads. In a mild winter, 3,542 skidding accidents in the East alone were serious enough to make newspaper items. In one northern state there were 828 front page crashes recorded, and even in a southern state there were 31. These were only the "front page" crashes. There must have been many more—but even these create a serious situation. What can conscientious public officials do about it? Many states and cities have found the answer in Rock Salt.

* * *

In a leading midwestern city the newspapers report: "This system of salting gives this * * * city a wide reputation for having its streets among the state's best in winter." The Traffic Director is quoted as saying: "Streets and highways free of ice and snow make a great deal of difference in number of accidents here."

2 TO 5 TIMES AS MUCH MELTING POWER PER DOLLAR AS ANY OTHER PRACTICAL CHEMICAL

POUNDS OF ICE MELTED PER POUND OF CHEMICAL

Maintenance Committee, Highway Research Board Vol. 13			ADVANTAGES OF SODIUM CHLORIDE AS CALCULATED BY INTERNATIONAL SALT COMPANY, INC.
Temperature Deg. F.	Sodium Chloride (Salt)	77-80 percent Flake Calcium Chloride	
30°	46.3 lbs. of ice	31.1 lbs. of ice	48.9%
25°	14.4 lbs. of ice	10.4 lbs. of ice	38.4%
20°	8.6 lbs. of ice	6.8 lbs. of ice	26.4%
15°	6.3 lbs. of ice	5.5 lbs. of ice	14.5%
10°	4.9 lbs. of ice	4.8 lbs. of ice	2.0%
5°	4.1 lbs. of ice	4.4 lbs. of ice	— 6.8%
0°	3.7 lbs. of ice	4.0 lbs. of ice	— 7.5%
—6.5°	3.2 lbs. of ice	3.7 lbs. of ice	—13.5%

NOVEMBER, 1938

Vol. LIII, No. 11

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Genuine Cooperation the Way to Modern City Transportation

IN a certain number of the cities of the United States there is genuine cooperation between the municipal government and the transportation company. In these cities adequate transportation is not an issue but a mutual objective. Even in this more placid atmosphere, however, there is a transportation problem, as will be pointed out later.

In a number of the larger cities there is an acrid transportation controversy, and in many other cities there is coldness or hostility between the city and the company. Here the transportation problem is much more severe and complicated than in the cities where the municipal officials, the business men, the general public and the newspapers believe, for good reasons, that the company is endeavoring to furnish the best ride it can and is proceeding toward still better service.

There is temptation to sermonize on this subject, for all organizations, transit companies as well as governments, are merely men and nothing else. Honest, intelligent, energetic, capable men are essentially friendly and expectant of good in others, and frequently they find it. Such men are reasonable and constructive. When they happen to occur in both the municipal government and the local transit company, the transportation problem becomes merely a matter of making the business pay. The problem then may be stated thus:

$$\frac{\text{Average rate of fare} \times \text{average load}}{\text{Length of line in miles}} = \text{Revenue in cents per car mile}$$

For instance, if the average fare is 6 cents, the average load per vehicle (average total number of fares collected per run) 30 passengers, and the length of the line 8 miles, the car earns 22½ cents per mile. Now the average operating cost is, say, 24½ cents per mile. Under these circumstances the company is losing 2 cents per car mile operated. If it has 500 cars operating, each averaging 14 such runs per day, each car is losing $2.24 per day, and for 500 cars operating 365 days the year's deficit is $408,800. This is the transportation problem in its basic terms.

It will be understood that the foregoing is simplification on a grand scale. The conditions are different in every city. A local transportation system is different from a store, to which customers come to shop. It is different from a steam railroad, to reach whose depot the customers will travel half or all the way across the city without thought of inconvenience, and then as a matter of course pay 33 cents for a journey that would cost them 5 to 15 cents by trolley car or coach. The mass-transportation vehicles must go out after the customers, as if it were continually election day. The companies must lay routes, frequently costing thousands of dollars per mile, to pick up customers, for the customers object to walking four or five blocks to pick up the route. In some cities, as in Pittsburgh, three lines will be required to serve as many customers as will be served by one line in other cities, owing to certain real-estate developments being just far enough apart to require separate lines. These developments may grow to profitable transit dimensions; but given enough of these in an adolescent stage, and the transit company is in the position of an unendowed philanthropy with tremendous expenses. City officials and business men want to know how other cities handle local transportation—by buses, trolley coaches, street cars? They would do well to examine with great care their own city. There is no magic in the vehicles alone. What is the geography of the city? Where are the concentrations of people? Can fewer lines provide reasonable service? What sort of heritage fell to the lot of the present managers? There is no mystery about the earnings of a transit company. Suppose it operates in a city of 500,000 population and carries 60,000,000 passengers per year at an average fare of 7 cents. Gross earnings are then $4,200,000. If the system verges on the obsolete and is running at a deficit, what are the reasons and what must be done to make modernization practicable? What kind of system can furnish an adequate, not lavish, quantity of modern service at a grand-total cost of a little less than $4,200,000 per year? There is no use to carp. It is necessary to understand; and to understand is to sympathize constructively—which is cooperation.

Decreasing patronage is one of the problems of the transportation companies. Suppose a company collects 35 cents of revenue per car mile and operates 1,000,000 car miles per year at a cost of 30 cents per car mile. Because of the existence of plant and equipment, an additional million car miles could be operated at a unit cost of 15 cents. The average cost for the 2,000,000 car miles would then be only 22½ cents, and with adequate loads the net income would be very considerably increased. Suppose, on the other hand, that patronage falls 500,000 car miles. The drop in revenues amounts to $0.35 x 500,000, or $175,000, while the saving in cost amounts to 15 cents x 500,000, or only

$75,000; so that there has been a loss of $100,000 in the income. What has happened to the net? The remaining 500,000 car miles cost $300,000 minus $75,000, or $225,000, or 45 cents per car mile against an income of 35 cents, bringing a $50,000 deficit per year compared with a profit of $50,000 per year on 1,000,000 car miles. This illustrates the need for more riders and gives meaning to the picture on the cover of this issue. Not only is the automobile a competitor, but it decentralizes and scatters passengers, making it more difficult for mass transportation to reach them.

What Four Transit Companies Say

A number of companies are showing a surplus; but the net earnings are not in the same class with industrial and commercial companies doing a comparable gross. Below are given proportionate (but not exact) total figures for 1937 for four typical transit companies.

Grand Total	I	II	III	IV
Revenues	$5,870,000	$10,120,000	$1,475,000	$3,960,000
Expenses	5,790,000	10,000,000	1,567,000	3,950,000
	$ 80,000	$ 120,000	$— 92,000	$ 10,000

These companies are doing well compared with many transit properties, and they show that local transportation can make expenses, including operating, office and overhead, regular depreciation and special retirement, debt service and taxes.

Following are the answers of these four companies to this question: "*What, if any, is the principal cause of controversy between your company and the municipal government?*

I. There is at present no cause of controversy between our company and the municipal government, by reason of the fact that we are working under a service-at-cost franchise, giving the city complete control of our expenditures and operations, including type of equipment, quality and quantity of service, localities to be served and all other activities, with the limitation that the orders of the city shall not require our exceeding our income, and that additions and betterments to the property can be required only if they can be financed by the company.

Our attitude toward the city control is to accept it and to comply to the extent of our ability. Our local newspapers understand our method of operation and are sympathetic with our endeavors to give the best possible service under city control. The same may be said of the Chamber of Commerce and other business and civic organizations.

II. We attempted to eliminate the causes of controversy as far as possible.

III. None.

IV. Our modernization program was developed and carried forward with the full cooperation of public officials who were equally desirous that the transit facilities be improved. The Chamber of Commerce and the various business and civic clubs have given us fine support, and with one exception so have the newspapers.

That these four companies still have serious problems facing them is indicated by their answers to these two questions:

A. *What is the most serious influence working against your company?*

B. *What practical thing would do most to straighten out your most persistent or serious difficulties?*

I A. The most serious influence working against our company is the increasing difficulties provided by traffic congestion and the illegal and unfair carrying of passengers by unlicensed private automobiles sometimes operating as taxicabs. This illegal carrying of passengers is hard to combat, especially where fares are not directly paid but made up by shared expense.

I B. The control and prohibition of unfair competition and the recognition of the ability of the major transportation system to aid in solving the traffic situation by substituting large public units for many times the number of private transportation units would go a long way toward helping the situation.

II. A & B. No direct comment.

III A. Continued and increasing tax burdens, particularly those applied by the Federal Government, such as the Social Security Tax, which increased the pension expense of our company approximately 50 per cent above the former private pension plan.

III B. One of the most aggravating problems encountered by an urban transportation system is the usual laxity displayed by city officials in improving the traffic problem. If city councils and business houses could be made to realize that the very existence of a street-railway system in a community lessens traffic congestion, due to the lesser street space occupied by street-railway passengers versus automobile passengers, the problems of the industry would be greatly lessened. Proper parking restrictions and the most economical use of street space would materially aid railway companies in serving units.

IV A. The most serious influence working against the company is low-rate taxicabs which do not do a legitimate type of taxicab operation; picking up prospective street-railway and bus passengers along established mass-transportation routes. This type of competition is dependent for its existence on extremely low wage rates and long hours of work by drivers. Another serious influence is requests for extensions of service into sparsely settled territory, unable to support even a small portion of the expense of such service.

IV B. Control by regulatory bodies of illegitimate and harmful competition which, if it continues will seriously impair the financial resources of the transit company and, in turn, impair the service of the company to the public.

In the case of the first company, the very nature of the franchise (service-at-cost) compels the city not only to participate in improved facilities but usually to initiate plans for them. The other three companies also are accustomed to municipal cooperation.

Regarding the complaint of unfair competition by automobiles operating as taxicabs, it would seem that there is little that the municipal government can do about this, as it is difficult to expose and prevent such illegal practices. Other sources suggest that actually it is not as serious a condition as is sometimes represented. The fact that three of these large companies state it as something for the municipal government to tackle, suggests that most of the real difficulties in these cities have been or are being overcome.

Company III poses a real problem: How make city officials realize the function and ability of mass vehicles to reduce congestion in the streets?

The revenue-expense figures given on this page should not be compared one with another, nor do they necessarily reflect adversely on the figures of other companies whose expenses may be considerably greater than their incomes. Sometimes, the greater the load, the greater the merit for carrying it at all. Expense includes taxes, which in numerous instances determine the color of the balance. Where a storekeeper more-or-less blithely passes his taxes along to his customers, a transportation company must almost invariably, by the nature of a public utility with a fixed rate of fare, place these taxes on its own back and postpone needed replacement of vehicles, which is a detriment to the city and its merchants.

Where local transportation is unsatisfactory, the job of the mayor and council is to determine (1) what is the matter and what they would do if they were the responsible managers of the company, and (2) what the company must actually do in order to provide satisfactory service, and (3) what the city may have to do to make it possible for the company to render this service at a fair return. Only a thorough understanding of the background of the company, arrived at through mutual cooperation, can determine what the net revenue should be in all fairness to the owners and the public, which involves comparison of the true valuation with an analysis of the outstanding securities.

Business men will recognize certain important differences between transit systems and most other industrial and commercial enterprises. In normal times the latter enterprises were expected to turn over their capital four times a year, whereas the street railways turned over their capital once in four years, and therefore have required sixteen times the capital to do the same amount of business done by ordinary business enterprises. One reason why valua-

tion and return on capital seem large is that it takes, roughly, four dollars of capital for every dollar of annual receipts. Even the sacrifice of the smoothness, comfort, capaciousness of electric operation, merely reduces the amount of capital required without removing this difference, for many more buses, as well as many more street cars and trolley coaches, must be owned by the company for peak-period use than required for the other 20 hours of the day. In fact, a company is likely to have as many again vehicles available as are in operation between the hours of 9 A.M. and 4 P.M., and city administrative officials should be prompt to realize that street traffic can be materially relieved by directing or diverting to the public transportation systems as much as possible of the movement of the people. The same number of persons can be carried by 3 street cars, 5 trolley coaches or large buses, 10 small buses, or 120 automobiles.

What Is a Street Car?

Though there are more than 30,000 of them rumbling through 300 to 400 cities, they are not what transit men mean by street cars. It is vital to any useful consideration of big-city transportation to know that there is a *modern* street car that is totally different from the familiar old trolley in all its works and features except that it runs on rails and has larger capacity than any other vehicle. It is fast in traffic, getting up to speed at the rate of 4¾ miles per hour per second and maintaining a schedule speed of 12 miles per hour against only 15 miles per hour by the local trains on New York City's subways. Three sets of brakes—using first the main motors, then magnetic brakes which grip the track, and, finally air brakes—not only stop the car with equal celerity, but in an emergency can reduce speed at the rate of 9 miles per hour per second, a safety feature of first importance. Another feature is the quick-acting doors with sensitive door edges. Twin rear stop lights minimize the likelihood of rear collisions. Special care is taken also in the seating and the lighting. An outstanding quality is the absence of unpleasant noise—a chief objection to the old street car. Hundreds of pounds of live rubber in the trucks and wheels dampen and deaden the noise to passengers, pedestrians, and residents. Like everything that is present-day, the car is streamlined. In 1935 there were 100 of these in operation; 397 in 1936; 580 in 1937; and today there are 791 of these *real* trolley cars operating in Baltimore, Boston, Brooklyn, Chicago, Los Angeles, Philadelphia, Pittsburgh, San Diego, Washington, Toronto, and Vancouver. This is the famous Electric-Railway Presidents' Conference Committee Street Car, developed in nine years at a cost of nearly three-quarters of a million dollars.

Transportation observers say that transit executives are hopelessly street-railway-minded. What are the facts? Transportation is an old business; yet in the last generation it whizzed into the electric age, and in this generation has bounced into the automotive age. As one of its most prominent figures says: "Slow as our evolution appears to be, it suits me down to the ground. Everything in the transit industry—notably trolley coaches and buses—is in a state of rapid development. The slower we go, the fewer mistakes we shall make." This operator had installed buses in his city in the early twenties, and they consistently lost money because, he says, they were 25-passenger buses, the largest then available, and were not large enough to earn their operating cost per mile. In 1928, he replaced them with 40-passenger buses, and they have earned a profit. Now he looks forward with considerable confidence to the successful development of a very large coach, such as the Super Twin, as the authentic challenger of that premier mass carrier, the modern street car. He sees this development as a trolley coach, because, whereas the bus is limited in power and acceleration, the trolley coach is not so limited. He is a big-vehicle man, and as such is in direct opposition to the rising school of operators who see in the small bus the salvation of the transit industry.

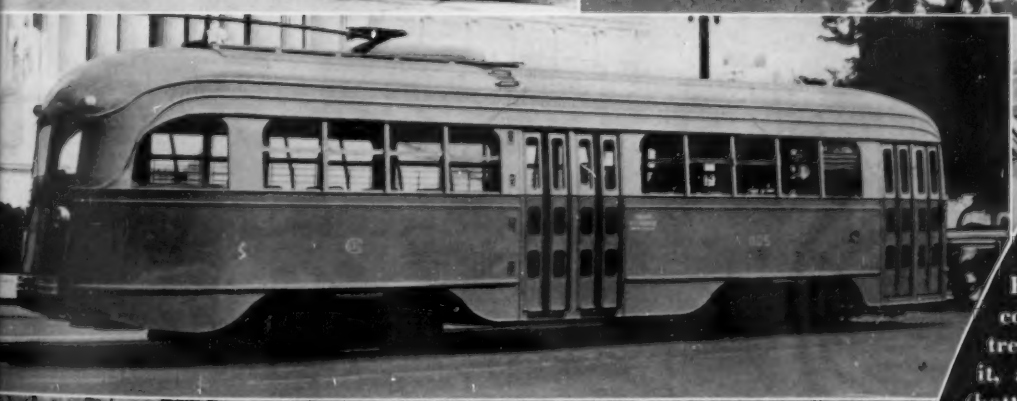
Must Pay

His attitude has an economic basis, and goes back to the simple equation set up in the early part of this article. A larger vehicle will carry a larger load, which, multiplied by the fare and divided by the length of the line, will pay a larger gross revenue per mile. For instance, a street car costing 30 cents per mile is expected to pay 35 cents, which in the course of a day amounts to a profit of $5.60, which on 500 cars would be $2,800 per day for the system. If a coach like the Super Twin can operate at 25 cents per mile, it should earn 30 cents, bringing an equal return. This happens to be one of the many cities where the big loads are one way in the morning and the other way at night, with thin pickings between. These cities are different from New York, for instance, where the mass vehicles turn over several capacity loads in the course of a single run, and different from Coordinated Public Service in New Jersey, which has the same satisfying experience and the additional advantage of passing through several fare zones on the same line. The principle simmers down to this: The big vehicle if filled, as it will be in the morning and evening rush hours, will certainly earn more money than a small vehicle, and is likely to average larger loads throughout the day than the smaller vehicle. It is equally apparent that in order to average these larger loads it must run less frequently than the smaller vehicle would. In a few words: The big vehicles are intended to carry the peak crowds and are made to serve on longer headways in the in-between traffic. Incidentally, if the *peak* loads increase and additional vehicles must be installed to carry them, the idle investment for the rest of the day will be that much larger, producing a net loss of substantial proportions. Hence again, the desirability of city officials cooperating in making mass-transportation vehicles still more popular at all times, including 9 A.M. to 5 P.M.

Another avenue for such cooperation is in the re-arrangement of routes. The bus is such a flexible vehicle that it can run on any route and is likely to do so. First one interest and then another asks that buses be installed on this street and that until there are more routes than are economic. In the larger cities buses are installed by the transit company (1) to furnish extensions to the street-car lines, (2) as substitutes for street cars, (3) to compete with independent bus routes, (4) as independent lines purchased by the main transit company. In a number of cities the transit service is thin, weak and meager because it is spread over too many routes. Where this is the case, the municipal government can improve the service by cooperating with the company in reducing the number of the routes. This may well not be a popular procedure in the beginning, but it will result in more frequent service on the truck routes *and frequently make the installation of*

(*Continued on page 50*)

The trolley coach now operating in 41 cities combines the economy, smooth-riding and quiet of electric drive with the maneuverability of rubber-tired wheels. Here it is shown (at top of page) hauling the steel workers of Youngstown, and the better residential dwellers of Shreveport, and climbing a San Francisco hill; (middle) stopping at curb in Dayton, and in below-zero weather in Columbus, Ohio, (bottom) one of this city's 40 latest-type coaches, in which the driver can respond instantly to variations in traffic speed without taking his foot from the power pedal.



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aboard in Chicago
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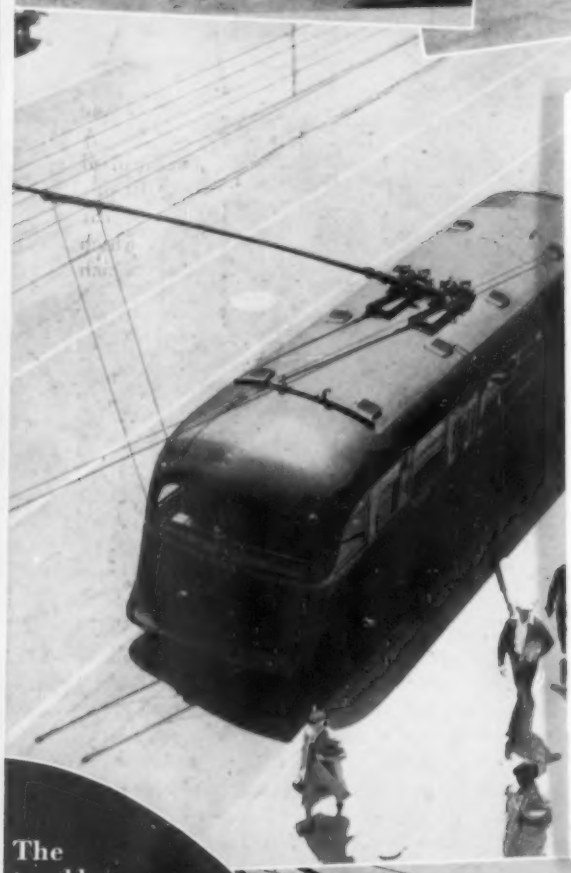
fast, smooth, quiet and comfortabl
service it provides."

ERE'S THE FAMOUS P C C STREET CAR



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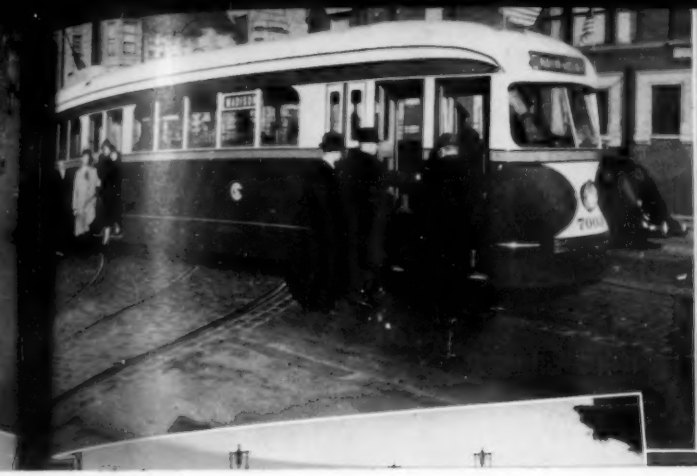

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service it provides."

ERE'S THE FAMOUS P C C STREET CAR

Trains of these dual-unit rapid-transit cars (top left) will soon be hauling commuters from San Francisco to Oakland over the new bridge. Top right—traffic on West Chester (Pa.) Road, seen from roof of City Center Building, and (at left) Electric-Railway Presidents' Conference street cars on Madison Street, Chicago; below it, a view of Eighth Avenue, New York, and (at right) one of 140 Portland, Ore., trolley coaches going 15 miles in an hour including 100 stops; bottom—five-section articulated New York Rapid Transit car, an evolution of the subway car and in the direction of a real metamorphosis in a few years into rapid-transit travel as agile, smooth, quiet and low-cost as the P.C.C. car has made possible on the street.

THIS IS MODERN CITY TRANSPORTATIO

The upper three pictures show the Super Twin, which operates as a diesel-electric bus or can be equipped to operate as a trolley coach. It is now on 60 days' trial in the Bronx for the Westchester Street Transportation Co. (Third Avenue Railway System, New York City), with the permission of the New York Transit Commission. Engineers for the Transit Commission say: "Though 47 feet long, this coach turns on the radius of a 33-foot bus, and has developed no serious defects." Engineers of the Third Avenue Railway System say: "It holds as many as a street car, is as easy to handle as a 33-foot bus, and is an excellent vehicle to use on a heavily traveled bus line." The interior view below at left is one of Detroit's swarm of smart mohair-upholstered 21-passenger buses shown at bottom. The lower right hand picture shows a 30-passenger bus in Los Angeles.

ES CARRY 21 TO 58 PERSONS SEATED

trolley coaches feasible. The municipal government and the company must fasten their vision on the best interests of the entire city rather than on the immediate interest and influence of any neighborhood group. Obviously, the best way to do this is to redesign the entire system of routes and sell the complete plan, in advance of putting it into effect, to the business and civic interests and the local newspapers. Frank J. McDevitt, in his article on page 103, tells how a sensible plan was put through in his city by placing it on public view and permitting the objectors to object as long as they had any objections left, and when at last they had become neutral or won over, the plan was tried out successfully.

The advantages of buses in flexibility and smaller investment are obvious, but they do have disadvantages. For instance, a city bus runs at least 300,000 miles a year, and every two years the motor must be rebuilt. In contrast, an electric motor runs almost indefinitely, though of course it must be fed by overhead lines costing $5,000 to $10,000 per mile. Of 283 cities of 25,000 to 100,000 population, 127 are all-bus and 126 are rail and bus. Of the 80 cities of 100,000 to 500,000 population, 18 are all-bus and 62 are rail and bus. The 13 cities over 500,000 population furnish street-railway and bus service.

Instead of discussing where the motor-bus belongs, which ranges between all cities below 50,000 and all cities, it is more constructive to begin with the question: Why do not more bigger-city transit operators install more buses or go all-bus? In fact, this is a good question for municipal officials and others in these cities who believe that modern city transportation means buses, to ask their local transit president. He is in business to make money as well as to provide service. Any means which will furnish adequate service at lower cost is of vital concern to him. To begin with, he must have money or credit in order to buy new vehicles. Having the money, would he buy buses or trolley coaches or more street cars, and why?

Having the money is important. In most instances the fare either is fixed by tradition or is as high as it will go without a diminishing return. Consequently, the increasing cost of labor, as well as higher taxes and the difficulty of financing new equipment, is an impediment to modernization on the scale needed. The transportation companies therefore should be distinctly in a frame of mind to welcome all constructive local cooperation leading to better layout of routes, sound understanding of the real situation, freer movement of mass-transportation vehicles and considerably greater use of them; for these things lead also to larger income from which to provide to the fullest extent that is financially possible, up-to-date facilities.

Great advances have already been made by transit operators in the adoption of new types of vehicles, including motor-buses, trolley coaches, gas-electric and diesel-electric buses, the all-service bus in New Jersey, and modern street cars. Among the major problems, the successful solution of which would give urban transportation in cities throughout the country the forward impetus which seems to be so badly needed, is the No. One problem of the transportation companies, which perhaps was best stated by Charles W. Chase, President of Indianapolis Railways, when he said:

"I think our Number One job today is to promote better understanding of transit among our riders, our employees and the general public. Somehow, and in some way, we must solve this problem on the basis of mutual consideration of the rights and interests of the public, the employees and the owners of the properties."

GENUINE COOPERATION IS BRINGING THESE MODERN VEHICLES TO PROGRESSIVE CITIES

Willimantic Water Works Hit by Hurricane

Description of Plant, and Method of Emergency Operation Following Loss of Impounded Supply and Electric Power

THE old and the new are blended architecturally in the new filtration plant at Willimantic, Conn., and old though still efficient hydraulic equipment is still used for the high lift or city distribution system pumping. The new filtration plant is a modern brick and concrete building lined with vitreous tile. It is Colonial in design, with solid shutters bearing the initial of the city in contrasting color.

A concrete dam across the Natchaug River just below the confluence of that stream and the Fenton River creates a source of hydraulic power for the old pumps and impounds 70 million gallons available storage for the water supply. The oldest pump was installed in 1900, but the dam is new. The older dam went out in the flood of 1936, when an old Barr reciprocating steam engine, installed in 1895, was called upon to do all the pumping until the dam could be replaced.

Everyday and Emergency Operation

The text of this article up to the description of the catastrophe and emergency operation since September 21, was written by the Engineering Editor of The American City following an inspection of the plant on September 17. The description of the operation of the crippled plant, and the photographs in the second group, were furnished by Roland F. Kittredge, chemist in charge of the Willimantic Filtration Plant.

The 174-square-mile drainage area above the dam includes much farm land and swampy areas producing a water with an alkalinity of 15 to 20, a turbidity of less than 5, and an average color of 50 but running as high as 100 and 140 whenever heavy rains occur in the spring or during the summer.

The Old Pumping Station

The old pumping station is a cut-stone structure on the shore of the river some 50 feet below the filtration plant. The main pumping units are the high-pressure hydraulic pumps which served to supply the city with river water for many years before the present filtration plant, completed in July, 1937, was placed in service. A Rodney Hunt hydraulic turbine drives a two-cylinder double-acting Worthington reciprocating pump, and an S. Morgan Smith hydraulic turbine drives a Worthington reciprocating pumping engine with three single-acting pistons. This latter pumping engine, installed in 1926, can also be driven by a 100-hp General Electric induction motor through a V-belt drive and a split coupling if hydraulic power is low, which has occurred regularly each summer except in 1938.

The low-lift pumps were installed as a part of the filtration plant project and consist of a pair of Worthington centrifugals driven by Westinghouse 15-hp motors delivering to a 12-inch cast iron pipe reduced to an 8-inch at the plant. The pumping station is equipped with a 10-ton wall crane. It is heated by Grinnell Thermoliers supplied with steam from the old boilers installed in 1895.

Aeration and Chemical Treatment

The raw water is first aerated at the plant by a Vogt Aer-O-Mix unit and discharged over a corrugated conical plate, removing a considerable portion of the odors of the marshland waters and of the oils of the algae growths which abound in these waters. A considerable amount of iron and manganese is also oxidized and removed by the aerator, as is seen by the color of the discharge vanes of the aerator and the quick removal of the material with a hose when the aerator is shut down. The water remains about 15 minutes in the 16,000-gallon aeration tank.

From the aeration chamber the water flows through a 2-foot-square opening in the lower end of the wall to the mixing basin, where the chemicals are added. Four Wallace & Tiernan dry feed machines are used to add the chemicals to the water. As the machines are placed in the chemical room, and from right to left, they are used to apply activated carbon through a galvanized iron pipe and ejector, the alum feed, an extra machine which is used for soda ash when needed, and at the extreme right the lime machine.

Activated carbon is not needed in the winter months, when there is no odor or taste whatsoever in the river water. During the rest of the year 0.2-grain per gallon is used, the dose being increased to 0.75-grain per gallon during the spring and fall. For most of the year the alum dose is 1¼ grains per gallon, the rate being dropped to 0.7 in winter. The rate of feeding of the lime is 0.4-grain per gallon during most of the year, and 0.7 for the rest of the year.

The valves at the dry feed machines permit the delivery of the chemicals to the aerator or to the clear well. When soda ash is used, it is delivered to the raw water. The valve on the carbon feed permits delivery to the aeration tank or to the filters. This valve is "cracked" so that a small amount of the carbon is fed to the filters continually.

The mechanical agitators consist of three sets of arms on a central shaft, the arms being 5 feet long at the top and 2 feet long at the bottom. The arms are set to give an upward motion to the water at the center of the well.

Because of the usual trouble experienced with lime feed lines, a special high-pressure line was inserted into the

THE WILLIMANTIC FILTRATION PLANT AT TIME OF NORMAL OPERATION

1. The new dam, built in 1936, showing a slight overflow. 2. A general view of the filtration plant from the entrance drive. 3. Back of the filtration plant and the elevated wash-water tank. 4. Close-up of the filter building

lime feed line at this plant to permit flushing under 140 pounds pressure. This has been very successful in eliminating clogging of the line. The 140 pounds pressure is direct from the high-pressure line to the city. All other water for domestic service in the plant is received through a reducing valve.

Settling the Floc

From the chemical mixing basin the water flows through another 2-foot-square hole in the wall through a conduit along the south side of the settling basin, which is located in front of the plant. The water runs through another conduit on the west side and thence into the two settling basins, which are operated in parallel. The water passes through the settling basins at 2 to 2½ feet per minute, removing about 90 per cent of the floc. The settling basins are of concrete with one over-baffle and one under-baffle at the effluent end. The basins are 49 x 49 x 13 feet, giving a capacity of 231,000 gallons and a retention period of 3½ hours. The basins are cleaned every two months during warm weather and every four to five months during the winter.

Filtration

The plant is equipped with three ½-million-gallon filters of the rapid sand type. The underdrains are half-round cast iron pipe on the bottom, with 1-inch holes in the top on 6-inch centers for the wash water. They are covered with 18 inches of graded gravel in seven layers ranging from 2½-inch to 1/16-inch, and on this 30 inches of sand of an effective size of 0.4 to 0.5 having a uniformity coefficient of 1.6. The wash-water troughs are set with the tops 30 inches above the top of the sand when at rest. The wash water is run at a 5-mgd rate, giving a 50 per cent expansion in the sand.

Wash water is furnished by a 40,000-gallon Pittsburgh Des Moines steel tank located just east of the plant. On a gage board on the operating floor of the filtration building is a 24-inch diameter dial showing the rate of flow of the wash water through a Builders Iron Foundry orifice meter. Mounted next to it is a totalizing meter register, from which the total amount of wash water for each washing is read. The third gage on the board is the Builders Iron Foundry venturi showing the flow from the low-lift pumps.

Each filter is equipped with a Norwood filter control table with Builders Iron Foundry indicating and recording rate-of-flow gages and loss-of-head gages. The flow of water from the city line to the wash-water tank is controlled by a Golden-Anderson altitude valve.

Sterilizing the Filtered Water

The plant is equipped with two Wallace & Tiernan vacuum sight feed chlorinators and a Wallace & Tiernan ammoniator. Chlorine at the rate of 5½ pounds per 24 hours is fed to the clear well through a manifold which permits the chlorine to be used for post- or pre-chlorination with either machine. The ammonia is applied to the water in the 135,000-gallon clear well. A small Fairbanks platform scale is set into the floor for weighing the cylinders at each of the machines. Hot water is used in the chlorinators in winter, and the room is held at a much higher temperature than the remainder of the plant.

A Builders Iron Foundry clear-well gage is located on the operating floor of the filters and is set to ring at 4 and 10 feet. The well is 11 feet deep. The plant is equipped throughout with Chapman gate-valves. A Kewanee oil-fired steam boiler with Minneapolis-Honeywell control provides heat for the plant.

The Catastrophe

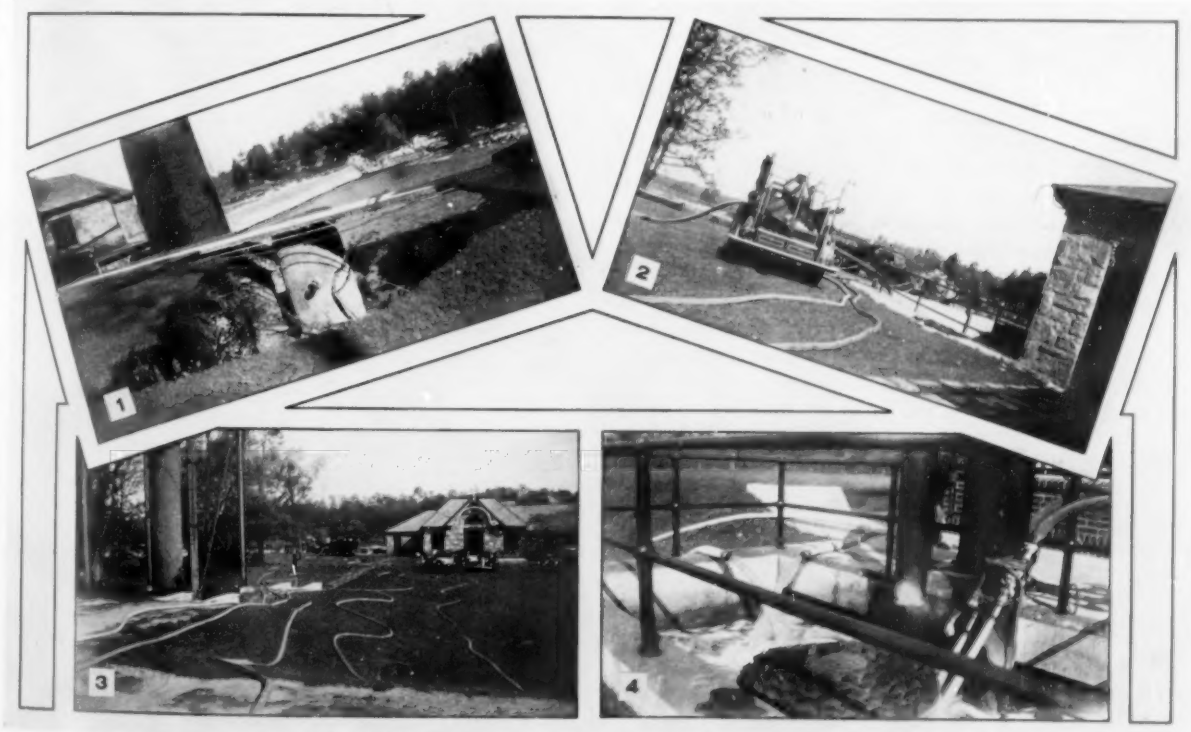
On September 21, 1938, Willimantic, like other parts of New England, was visited by flood and hurricane, which crippled the water supply. The water coming over a new dam constructed in 1936 rose steadily to a record height of over 10 feet, and attained a height of 7 feet in the pumping station, completely covering all pumps and motors. Although the dam withstood the surge of the wild-rushing water, the breastwork on the east end of the dam went out, taking with it practically the entire impounded supply, leaving only a depth of about 2 feet as against a normal level of around 18 feet. Shortly after the retaining wall gave way, the hurricane set in, uprooting trees and felling telegraph poles, thus blocking the main roads, leaving the pumping station, which is a distance of five miles or a ten-minute drive from the city, completely isolated, since all other roads were impassable because small bridges had been carried downstream by the rushing water. Twenty-four hours after the storm had subsided, by means of a thirty-mile detour and much chopping and hauling of trees, men reached the pumping station and set to work on their arduous task of getting the pumping station and the filtration plant back into service.

A break in an 8-inch main in the flooded area caused a most serious predicament, for considerable water flowed from the reservoir before it could be shut off. Twenty-four hours after the break in the retaining wall, there was less than 1,500,000 gallons of water in the storage reservoir, which normally holds from 5,000,000 to 6,000,000 gallons and should last about a week.

Emergency Pumping

Rumors soon spread throughout the city that the water was to be shut off, and as a result the hospital, hotels, stores and residences filled every available receptacle, completely draining the reservoir. There was no water, lights or power, and not a pump in workable order. Frantically the men set to work on the old Barr steam pump. Wet coal handicapped them, but in due time the steam pressure was built up to 60 pounds, the old pump turned, and was ready for use.

The water was so low that it was impossible to get it up to the filtration plant after replacing the 15-hp motor that drives the low-lift centrifugal pump. A call was sent to the Willimantic Fire Department, and under the leadership of Fire Chief Charles Reynolds a Mack rotary pump furnished about 600 gallons per minute with a 19-foot suction lift and an 18-foot discharge lift through 300 feet of 2½-inch fire hose. Chief Reynolds then summoned help from the State College Fire Department at Storrs, which responded with a Maxim centrifugal pump on a Diamond T chassis, which furnished 250 gallons per minute. The Hampton, Conn., Fire Department sent a LaFrance rotary pump, which furnished 325 gallons per minute, and the Eagleville Fire Department also sent a Maxim pump on a Diamond T chassis, to furnish 225 gallons per minute. These four pieces of fire apparatus, aided by a Rex rotary pump with a 4-inch suction, pumped for almost a week before the break alongside the dam was temporarily blocked. The water-level then rose enough to use the low-lift pump. This water was pumped into the aerator at the filtration plant.



THE WILLIMANTIC WATER WORKS AFTER THE HURRICANE OF SEPTEMBER 21, 1938

1. A washout at the point from which the photograph of the dam in the first group was taken. Note the retaining wall that failed, in the upper right corner of this photograph. 2. Two of four fire engines and the Rex pump working at the water intake at the west end of the dam. 3. The number of hose lines increased as additional pumpers arrived; here are six extending from the intake to the aeration chamber. 4. An early picture when but four of the ten hose lines were feeding water to the filtration plant

Emergency Treatment

A high residual chlorine content of about 1 ppm, dropping gradually to 0.5 ppm, will be carried until such time as it will be safe to drop lower. Although a bacterially safe water was the paramount necessity, treatment was continued with the use of four 50-gallon cider barrels with taps, filled with solutions of alum, soda ash, and lime, feeding as near as possible 1.5 gpg alum by making a 50-pound in 50-gallon solution, figuring a 1-inch drop every 6 minutes, and ¼-gpg of soda ash using a 25-pound in 50-gallon solution and getting a 1-inch drop every 9 minutes. Both of these solutions were added in the chemical mixing basin, and a good floc was obtained. A lime suspension of 25 pounds to 50 gallons was added to the clear well to bring the pH of the effluent to about 7.6. By using the foregoing methods, the color was reduced from 90 ppm to about 5 ppm, and a turbidity of 12 ppm to 1 ppm.

This water was furnished to the good old Barr steam pump, which in turn fed it to the system and will continue until the electrical equipment and other pumps are in working order.

The flood caused several hidden leaks. When these are located and remedied, the men at the pumping station will breathe easier. They are thankful the good old steam pump had not been disposed of as had been contemplated. Taking advantage of the fact that the reservoir was empty, emergency crews were assembled and, using Homelite pumps and generators and floodlights, the reservoir was cleaned before it was again placed in service.

The new Willimantic filtration plant was designed by Nicholas S. Hill Associates, of New York City, constructed under the personal supervision of John F. Collins, City Engineer, and placed in operation in July, 1937. Roland F. Kittredge is Chemist in Charge of Filtration, Roger Moran is Superintendent of Water Works, covering the distribution system, and Morris Moran is Superintendent of the Pumping Station.

T. R. K.—903.

Garbage Disposal by Hog Feeding in a Small Indiana City

City Collects Cans and Leaves Steam-Sterilized Containers

THE disposal of garbage is frequently one of the most aggravating problems for the small inland community. Unable to dispose of its refuse by dumping wholesale into the sea or by grinding and discharging into a large river, the small inland city must build some cleanly disposal plant or permit the unsightly accumulation of refuse in a dump. The latter method is objectionable from the standpoint of sanitation, while the former is frequently not economical from the standpoint of cost to the small community.

The city of Valparaiso, Ind., population 8,000, has worked out its garbage-disposal problem satisfactorily from the standpoints of both cost and sanitation, by making use of facilities which it has at hand. The equipment used is familiar, and available to almost any community. It consists of an ample supply of city-owned garbage cans, a boiler for steam-cleaning the used cans, a fleet of Ford V-8 trucks for hauling the cans, and a large drove of characteristically hungry hogs to consume the garbage.

The city requires that each family own a substantial metal garbage can, and then the city purchases one to match the family-owned can. As each full can is picked up, a clean one is left in its place. The garbage-collection trucks operate on regular schedules, starting out with as many as 125 clean, empty cans each, and keep going until all the empty cans have been replaced by full ones. Then the trucks go to the farm of Ernest Holmgren, garbage contractor, located some distance out from the city. There the garbage is dumped in the fields, and while it is being consumed by a large drove of hogs, the cans are steam-cleaned and stored until they are needed again.

The profits which the garbage contractor makes from his hogs has a direct bearing upon the terms of his contract with the city. The result is a garbage-disposal plan which has worked out to the entire satisfaction of the city, the householders and the contractor.

DISTRIBUTING GARBAGE ON THE GROUND FOR THE HOGS, FROM THE FLAT-BODY TRUCK, WHICH DELIVERS A CLEAN CAN TO EVERY HOUSE IN VALPARAISO, IND., AS THE FULL CAN IS COLLECTED

Teaching Police to Handle Traffic

Intensive Courses Taught by Northwestern University and International Association of Chiefs of Police

By HAROLD E. GREEN
Northwestern University, Evanston, Ill.

MORE than 500 municipal police have been trained in the science of accident prevention at 18 training schools for traffic officers in less than five years. This is the police profession's answer to the question: "What can the police do to check the rising toll of death and injury from traffic accidents?"

The first traffic officers' training school was held at Northwestern University in October, 1933, with 22 municipal police attending a two-week session. From that year until 1936 one Basic Course, primarily for municipal officers, was given each fall at the University. These were the first such courses ever offered in the country. They are now made available also at the following universities and colleges: Alabama, Maryland, Pennsylvania State, and Rutgers.

The success of these traffic officers' training schools brought about the organization of the Northwestern University Traffic Safety Institute in April, 1936. The Safety Division of the International Association of Chiefs of Police was organized at the same time. The organizations were housed in the same building on the University campus in Evanston, Ill., with Lieutenant Franklin M. Kreml as Director of both.

Since then more pioneering has been done. The Institute has conducted two highway patrol officers' training schools; an Advanced Course has been developed and given in 1936 and 1937 for officers showing special aptitude in the Basic Course; and the Institute has inaugurated a traffic safety course for commanding officers in traffic divisions of municipal police departments.

Since 1936 the Institute has given a course in accident prevention and street traffic control which lasts for an academic year.

The Safety Division, I.A.C.P., in addition to installing accident prevention bureaus in police departments, has promoted eight two-week traffic officers' training schools at various universities and in one state police department. These courses are modeled after the traffic officers' training schools conducted at Northwestern University.

Altogether, 932 students have attended 18 traffic officers' training schools conducted by the two organizations. The student body has consisted of the following: 654 municipal police; 157 state police; 23 county police; 98 special students serving in various capacities in the traffic safety field.

Forty per cent of the municipal police attending the schools have been ranking officers. Among them have been 50 chiefs of police, 41 captains, 39 lieutenants, 105 sergeants.

Every police department should contain men who can plan and execute a complete program for the prevention of automobile accidents and the relief of traffic congestion, in the opinion of Lieutenant Kreml. A police department should send from one to three men to a traffic officers' training school each year, according to the size of the city and the traffic conditions within the city. The size of the city should not be the main determinant.

Population Group*	Cities Represented at N.U. Traffic Safety Institute T.O.T.S.	Cities Represented at Safety Division I.A.C.P. T.O.T.S.	Cities Represented by Combined T.O.T.S.	Number Cities in U.S. *	% Cities Represented at T.O.T.S.
Over 1,000,000	3	2	5**	5	60%
500,000 - 1,000,000	3	5	5***	8	63%
250,000 - 500,000	13	5	15	24	63%
100,000 - 250,000	21	12	34****	56	61%
50,000 - 100,000	18	29	41	98	42%
25,000 - 50,000	25	20	37	185	20%
10,000 - 25,000	19	53	68	606	11%
5,000 - 10,000	13	21	25	851	3%
2,500 - 5,000	1	9	9	1332	½%
Population not listed	2	16	18	—	—

*1930 U.S. Census figures from Chicago Daily News Almanac
** and Montreal, Canada
*** and Washington, D. C.
**** and Winnipeg, Canada

OF THE TOTAL OF 255 CITIES, 232 ARE OF 250,000 POPULATION OR LESS

The two-week course at the traffic officers' training schools is designed to enable a policeman to improve his ability within a short time. Then he returns to his community and teaches and puts into practice what he has learned.

"Police chiefs should send their best men to these schools," says Lieutenant Kreml, "and especially men who can be given accident-prevention assignments immediately upon their return home."

Subjects in these short courses include:

Accident Investigation
Accident Reports and Records
Drunken-Driver Control
Enforcement of Traffic Laws
Motor-Vehicle Inspection
Physical Laws Governing Motor Vehicles
Public Safety Education
Traffic Engineering
Traffic Police Organization and Training
Traffic Legislation

The schools are limited to from 25 to 50 students, to allow for individualized instruction and consultation.

Each morning session is devoted to lectures and discussions; each afternoon to field work and demonstrations. Sessions are held every day except Sunday.

What do students do when they return home? Take the case of a group of nine municipal policemen who attended the traffic officers' training schools at Northwestern University in 1936 and 1937.

1. Two have been promoted.
2. Accident Prevention Bureaus have been installed in five cities; in four of these, all accidents are now being investigated; in seven cities the apprehension and conviction record in hit-and-run accidents has been improved.
3. In seven the enforcement index has been increased.
4. In five the traffic division has been reorganized or improved, with the commander promoted in rank in one city; men added to the division in five; new equipment purchased in seven; shift assignments made more efficient in seven; and selective enforcement inaugurated in seven.
5. In eight cities the accident-reporting system has been improved, with the standard report card adopted in four; a location file established in seven; an accident spot map set up in seven; and drivers report cards adopted in six.
6. In four cities improvements have been made in arrest ticket systems, with the triplicate system adopted in one.
7. In seven the "fixing" of arrest tickets has been eliminated or reduced, and in five cities the police are obtaining a higher percentage of convictions in all traffic cases.
8. In one the model municipal traffic ordinance has been adopted, and in four, sections of it have been adopted.
9. In eight engineering studies are now being made of high accident locations.
10. In eight safety education has been inaugurated in the schools, and in eight the general safety education work of the community has been increased.

The academic year course in traffic control and accident prevention conducted by the Northwestern University Traffic Safety Institute is supported by the Kemper Foundation for Traffic Police Training and the Alfred P. Sloan, Jr., Traffic Safety Award. The Foundation, which is co-sponsored by the Lumbermen's Mutual Casualty and American Motorists' Insurance Companies, granted the sum of $6,500 to support the course during the 1936-37 school year, when cash fellowships were awarded to seven men. Two others were admitted without stipend. For the 1937-38 school year the Foundation granted $10,000. Nine men who received cash fellowships and three others were in resident study at the Institute.

This year, in addition to a $10,000 grant made by the Kemper Foundation, $15,000 was given by the Alfred P. Sloan, Jr., Traffic Safety Award Committee of the Automobile Safety Foundation for fellowships to be awarded to policemen in the winning cities and states in the 1937 National Traffic Safety Contest.

Twenty police officers are now attending the year course on fellowships of $1,200 each, eight of which are Kemper and twelve of which are Sloan awards. Three others are attending on special invitation of the Institute, but without stipend.

Police officers in active service in the United States, its dependencies, and Canada, are eligible for Kemper Fellowships. There are no educational prerequisites. The fellowships are awarded on the basis of competitive examinations of intelligence, alertness, and attitude. As in the case of those students who attended the two-week traffic officers' training schools, the Kemper students have been successful in the field of traffic safety upon their return home.

Thus, in less than six years, a new science has been developed—the science of automobile accident prevention. Nine hundred and thirty-two students have been graduated from the traffic officers' training schools. Twenty-one Kemper students have been graduated after an academic year of study in the field of traffic safety.

"Yet there is much work to be done," says Lieutenant Kreml. "There are hundreds of cities in the United States whose traffic police are not trained in the science of accident prevention."

Police or Engineering Department?

By ROBERT A. MITCHELL
Traffic Engineer, Philadelphia, Pa.

THE traffic engineer is a specialist whose methods have improved the technique of both the engineering and the enforcement side of the traffic problem; therefore it is difficult to give a direct answer to the question, "Should traffic engineering be in the police or the engineering department?"

Traffic engineering methods such as training police, creation of accident-investigation squads, coordination of traffic signals, efficient use of street area, usually result in a very noticeable reduction in accidents and the freer movement of traffic. These things can be accomplished only with the whole-hearted support of the police.

As traffic-accident records, the basis of most of the traffic engineer's study, are compiled by the police department, a traffic engineer in that department is in a much better position to see that they are adequate for his purpose and easily obtainable. Certain traffic engineers whose offices are in engineering departments state that the main disadvantage of their set-up is the trouble they have in obtaining adequate accident records.

Traffic signals, signs and markings are all mechanical methods of controlling the movement of traffic. Their effectiveness in accident reduction depends upon driver obedience; their help in eliminating congestion, on their design, erection, operation and maintenance. The former is an enforcement function requiring the services of the police; the latter an operating function requiring the use of engineering calculations. The traffic engineer, given complete charge of the design, erection and operation of this equipment, could successfully operate in either the police or the engineering department, or in a department of his own.

The most efficient use of available street space for the movement and storage of vehicles is another very important phase of traffic control which involves both engineering and enforcement. The traffic engineer can handle the technical phase, but, as enforcement is the function of the police department, this phase of the problem could be handled better by having the traffic engineering organization in that department. Though improvement can be made in traffic conditions by proper enforcement methods, the creation of permanent and efficient traffic *facilities* is necessary for real improvement, and the provision of new street areas and the rearrangement of existing streets and intersections are engineering functions.

Several traffic engineers whose units are in the police department testify that they have difficulty in getting support from the engineering department; others who are part of the engineering group seemed satisfied with the progress they were making on this phase of the work. It is evident, then, that to bring about permanent traffic improvements, traffic engineering must be closely linked with the engineering department.

Organizations such as the American Public Works Association, International Association of Chiefs of Police, Institute of Traffic Engineers, and others, should make a thorough study of all the facts and then recommend to public officials a uniform and practical organization for handling the traffic engineering side of the traffic problem.

Repaving Over Street-Car Tracks

Jacksonville, Fla., Provides Parking Strips and Repaves with Sheet Asphalt

BAY STREET in the heart of the business section of Jacksonville was originally paved with cement-grouted brick on a 6-inch concrete base with a sand-cement cushion, the whole being 55.4 feet wide. Down the center of the street was a double street-railway track on a heavy, rigid concrete foundation. In spite of this, the brick were damaged along the rails, and the whole street needed repaving to carry the increasing traffic after the abandoning of the street cars. It was not considered feasible to remove the rails and disturb the foundation, because of the attendant cost. Since the street was wide enough to take a slightly increased crown, it was decided to place a 7-foot concrete parking strip along each side, fill the rail grooves and lay a sheet asphalt top between the parking strips.

It is the policy in Jacksonville whenever a pavement is being relaid or resurfaced to replace the parking areas with concrete instead of a bituminous mix. Cars parked on any asphaltic surface permit the material to deteriorate because of the lack of traffic, impressions from the wheels in hot weather leave places for water and dirt to settle, and drippings from crank-cases and leaky gas lines soften the asphalt and destroy it. Furthermore, concrete parking strips give an opportunity to build integral curbs and get rid of another gathering place for dust.

On Bay Street between Broad and Market Streets, 7 feet of the brick were removed on each side of the street down to the concrete foundation, and a 7-inch plain concrete surface was poured with a 2-inch shoulder above the old brick pavement. Concrete parking strips were built to conform to the original gutter line at the curb.

In order to insure a complete and permanent filling of the grooves in the street-car tracks, they were filled with a 1:3 cement-sand mortar. It was not necessary to wait

TWO PAIRS OF BEFORE AND AFTER PHOTOGRAPHS TAKEN ON BAY STREET, JACKSONVILLE, FLA., SHOWING IMPROVEMENT THROUGH PAVING OVER STREET-CAR TRACKS AND OLD PAVEMENT

The two upper pictures were taken looking east on Bay Street from Broad Street. Note the concrete parking strips next to the curbs in the right-hand picture. The lower pair of photographs were taken looking west from Market Street on Bay Street and show the great improvement in traffic capacity through the covering of the tracks

for the material to cure, for it was completely sealed in. The same material was used for filling depressions next the rails and at frogs.

Larger depressions were filled with the standard asphaltic binder mix up to the elevation where the sheet asphalt top would be placed.

Paving and Handling Traffic

During the construction of the parking strips, traffic used the center of the street, and when the asphalt work was under way it was never necessary to close the street for more than three days for any one block. This is probably the heaviest-traveled street in the city. Traffic from the St. Johns River bridge approach and from the since-abandoned ferry at the foot of Main Street was never held up.

A minimum of 1½ inches of binder was placed over the entire street between the concrete parking strips, and in places the thickness ran as high as 4 inches to give a uniform contour for the sheet top. The binder was compacted with a 10-ton 3-wheel roller used longitudinally.

The surface was finished off with 1½ inches of a very stiff sheet asphalt mix with a large percentage of dust. It was laid in cool weather, resulting in a surface not as smooth as was striven for, but there were no variations greater than ¼-inch in 10 feet, according to constant straight-edging after crisscross rolling. The sheet asphalt was left slightly high against the concrete parking strips so as to be able to compact under traffic and not leave a groove against the strips, and also to seal the asphalt against the concrete by slight feathering under traffic.

This work has been in service now for about one year, and no depressions have developed over the grooves of the rails, and the seal against the parking strips is excellent.

Quantities and Costs

The Bay Street project was 3,646.7 feet long and 55.4 feet wide, and contained a total of 24,039.3 square yards of concrete and asphalt pavement. The quantities were as follows:

18,411.0 square yards of 1½-inch sheet on 1½-inch binder
97.5 tons sheet asphalt
796.2 tons binder
5,628.3 square yards concrete parking strip
323.0 cubic yards of base concrete
280.0 linear feet of concrete header on entering streets
1,756.5 square yards of brick relay on entering streets, bituminous filler

Total price bid by contractor	$51,893.70
Total actual cost	$53,921.64
PWA grant of 45 per cent	$24,264.74
City paid one-third	$ 9,885.63
Property owners assessed two-thirds	$19,771.27
	$29,656.90
Cost per square yard of concrete and bituminous construction	$2.243

The contract for this work was awarded to the Duval Engineering and Construction Co., of Jacksonville, Fla., on its bid given above. The work was done under the direction of the Engineering Department of the city, W. E. Sheddan, City Engineer.

T. R. K.—801.

Housing Authorities Describe Local Conditions Demonstrating Need for Slum Reclamation

DISCLOSURES as to indecent, unsafe and insanitary housing, which municipalities heretofore have often attempted to suppress, are being increasingly made public as a result of the competition among cities for United States Housing Authority aid for local slum clearance and low-rent housing projects. As a basis for the approval which President Roosevelt gave on September 7 to 30 contracts for such projects in 18 cities, statements were submitted by the local housing authorities, from which the following extracts are taken:

Mobile, Ala.—Houses in slum areas are largely of the "shotgun" or ramshackle type, in deplorable condition and having no inside toilets. Nearly all are overcrowded. Yards are neglected. In many cases one-third of income is paid out in rents.

Oakland, Cal.—On the sites of the two proposed slum clearance projects, 50 per cent of the buildings are in need of major repairs or are totally unfit for habitation.

Kokomo, Ind.—There has been an increase of approximately 100 families per year since 1930, in contrast to only 8 new dwellings constructed per year during that period.

Vincennes, Ind.—20 per cent of all dwellings are definitely substandard; many are unfit for human habitation. Of 20 total vacancies in the city (population 17,563), only 5 are deemed of standard quality.

Covington, Ky.—Bad slum conditions have been aggravated by the recent Ohio River flood. It is impossible for low-income families to obtain decent housing at rents which they can afford.

New Orleans, La.—There are about 36,000 white families and about 28,000 Negro families (in a total population of 516,000) living under indecent, unsafe and insanitary housing conditions.

Annapolis, Md.—40 per cent of the 2,761 dwelling units are substandard in that they either do not have proper inside toilet facilities, are overcrowded, or are unfit for human habitation.

Baltimore, Md.—In a total population of 987,000 population, there are 16,078 cases of doubling-up of families; 45 per cent of homes in substandard areas are structurally unsound; only 17.5 per cent are deemed to be in fit living condition.

Elizabeth, N. J.—8,201 out of a total of 28,301 dwelling units are in need of major repairs; 1,538 are utterly unfit for human habitation.

Newark, N. J.—More than one-half of the rental dwellings are heated by stoves; 2,018 homes have outdoor toilets used by two families; 45 per cent of residential structures are in need of major repairs.

Buffalo, N. Y.—Although the population has been increased approximately 20,000 over 573,076 since 1930, there has been virtually no residential building by private industry during the last six years. Vacancy is estimated at less than 1.5 per cent.

Utica, N. Y.—Decrease in number of dwellings available in low-income families is sharply accentuated by an increase in population. More than 2,000 families would probably qualify for tenancy in the 212 new dwellings planned by the Authority.

Yonkers, N. Y.—Poor residential districts contain one-third of the city's population. They are spreading because of the progressive deterioration of neighboring properties.

Cincinnati, Ohio.—Despite an increase of 22,261 in population since 1930, there has been a shrinkage in 9 years of 5,000 decent low-rent dwellings. Room overcrowding is said to be twice the national average.

Chester, Pa.—43 per cent of Chester's dwelling units are substandard—in need of major repairs, lacking in proper sanitation, heating or lighting facilities.

Corpus Christi, Texas.—There are more than 1,400 outside privies in the city; 50 per cent of slum dwellings are structurally unsafe; less than 1 per cent of the city's dwellings are vacant.

El Paso, Texas.—More than half the population is Mexican, of whom 80 per cent live in wretched housing.

Huntington, W. Va.—There was a net increase of only 212 dwelling units for an increase in population of 7,000. Approximately 2,300 families will be eligible for the 500 new dwellings to be built.

City Makes Own Storm-Sewer Pipe

An Interview with J. W. Hejda, City Engineer, Virginia, Minn.

By ERLING TONESS

ONE OF Minnesota's outstanding WPA projects, and the first of its kind in the state, is the manufacture of reinforced concrete storm-sewer pipe in the city of Virginia. The two chief needs met by the project, which also includes the laying of the pipe, are work for the city's unemployed and storm sewers for Williams Addition, an outlying location. In all, about 12,000 lineal feet of 12-, 18-, 24-, 30-, 36-, and 42-inch pipe (each pipe 4 feet long and 2, 2½, 3, 3½, 4, and 4½ inches thick, respectively) are being laid; 27 manholes and 126 catch-basins are included.

At one end of the factory is the one-sack Jaeger concrete mixer, with a gravel bin on one side and a sand bin on the other. At the bottom of each bin run three steam nozzles, to thaw the frozen aggregates in cold weather. A ramp leads from the mixer to a long platform, on either side of which are placed the pipe molds. Directly over the center lines of the pipe molds are suspended traveling chain blocks, for lifting out the cores of the molds.

The tongue-and-groove type of Crescent steel form is used. A cylinder of electric-welded rectangular steel mesh is inserted in each form after it has been set up, but before the concrete is poured in. One of these reinforcing cages is required for pipes under 36 inches, and two for those 36 inches or larger. The core is contractible, to facilitate removal. A round steel disk, the shoveling plate, rests on top of each core. All molds are set on movable square platforms about 9 inches high, their surface dimensions varying with the diameters of the pipes.

Steam for curing the pipes is furnished by a boiler, from which piping runs under the long platform, branches to the molds, and also continues on to the space reserved for steaming the pipes after the forms are removed. For each set of forms there are three bottom rings, or pallets, so that the forms can be used three times while the pipes are steaming. The bottom ring remains attached to the pipe until after the curing process is completed. A 5,000-pound lift truck with a 2⅝-inch lift is used for hauling pipes in the plant.

Pouring the Pipe

Operation of the plant proceeds as follows: Into the concrete mixer goes a mixture in the proportions of one sack of cement, two parts of sand, and three parts of pea rock, with enough water to give a slump of not over two inches. These ingredients are mixed for at least two minutes, then wheeled in rubber-tired wheelbarrows up the ramp to the platform. The concrete is dumped on the shoveling plate resting on the core of a mold, and workers shovel it between the walls of the mold. While the concrete is being deposited in the form, a Syntron electric vibrator is placed on the outside of the form, to pack the concrete around the steel reinforcement and to give the pipe a smooth finish on all exposed surfaces.

When one or two pipes have been poured, a steam jet is placed on the inside of each pipe near the bottom, and canvas covering is laid on top. Thus the pipe is allowed to steam for about three hours, after which time the outer and inner forms are removed and the pipe is hauled to the far end of the factory for an additional three or four hours' steaming. When it has become white, the pipe is cured and ready for use, except for one more operation. It is turned over on a pile of discarded tires, and the bottom ring is removed. Capacity production of the plant was originally estimated at 144 feet per day, but average

MAKING CONCRETE STORM-WATER PIPE IN THE CITY YARD AT VIRGINIA, MINN.

Left—Removing a steel form from the pipe center. Center—A general view of the plant, showing pipes on platform being cured by steam. Right—Laying a section of storm sewer pipe

production, when this was written, had reached 160 feet, the record so far being 180 feet per day.

Trucks transport the finished pipes to Williams Addition, where a large crew digs ditches and lays sewers. Each section of pipe is lowered into position by means of a scaffold with chain blocks. Five lateral lines of storm sewers will run along avenues of the addition. These will connect with the main line, constructed of 36-inch pipe, which will, in turn, connect with the 42-inch pipe running under the municipal airport, emptying into an open ditch leading to a creek a few miles from Virginia.

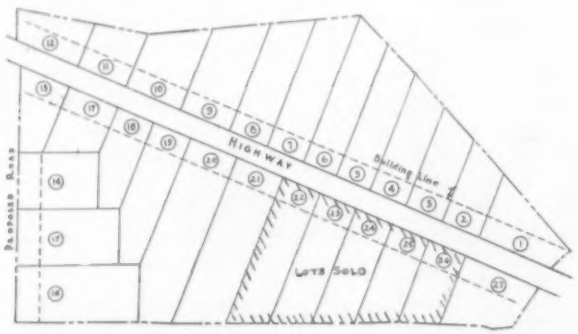
The project was set up to last 96 working days and to provide 1,529 man-months of work. About 30 men are employed at the manufacturing plant, and over 200 more in laying the sewers. The Federal Government is paying for the labor, the city of Virginia for materials and other costs. The superintendent of the project for the WPA is A. F. Benson. The area engineer for the WPA is S. A. Siverts, Jr. The project was planned and is conducted under the supervision of the City Engineer.

Planning Profitable Neighborhoods

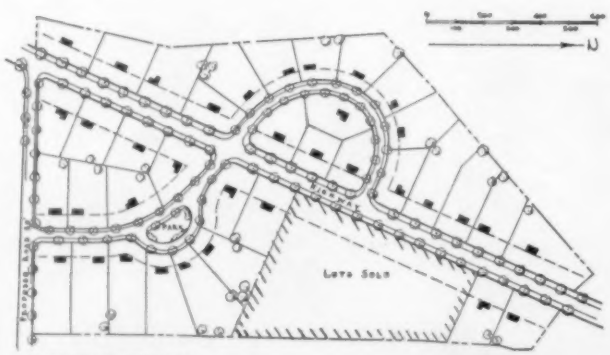
"MILLIONS of dollars in the past two decades have been expended wastefully in premature and superfluous land developments founded only upon vague speculative possibilities."

"Subdivisions planned as neighborhoods are more profitable to developers, better security for investors, more desirable to home owners."

The above is quoted from a booklet prepared by the Federal Housing Administration on the whys and hows of "Planning Profitable Neighborhoods." (See page 115 of this issue for listing of this publication.) The booklet states: "Subdivisions located with correct reference to city growth and plan, population trends, business and industrial centers, transportation and other facilities can be profitable ventures. Projects planned for the best use of the land and its economical development provide the basis for a fair return on the investment. Housing developments that meet a definite local market are less subject to blight, stagnation or decline, and consequent financial losses."



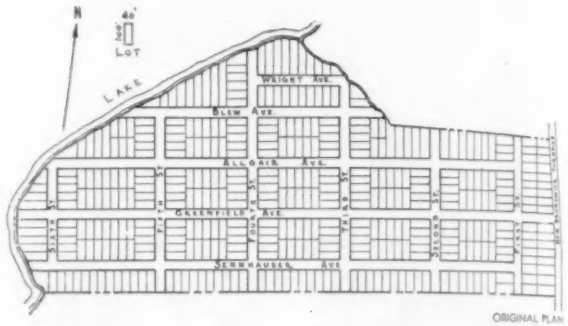
ORIGINAL PLAN



SUGGESTED REVISED PLAN

The original plan shown here was submitted to the Federal Housing Administration for review. A study of the local real estate market and surrounding land use revealed that many of the lots in this layout were excessively deep and wasteful of land.

The suggested revised plan introduces a local street permitting more economically sized and shaped lots as well as a more attractive and interesting neighborhood. Forty-one lots are available for sale, fourteen more than were contained in the original plan.



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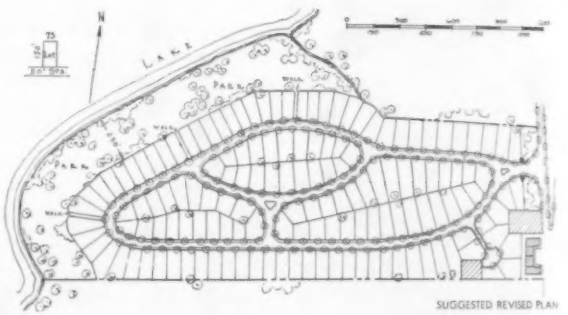


SUGGESTED REVISED PLAN

An excessive amount of street construction, the rigid and montonous layout of streets, the use of "butt" lots, and the subdividing of the wooded lakeshore, as shown in the original scheme, would have made this project costly to develop and difficult to market.

The revised plan has overcome these objections, and every lot has been made a desirable building site. Although this plan provides fewer lots, the changes permit a greater financial return and quicker sales for the developer, and a better investment for the buyer.

Following are the principles, analyzed and illustrated in the pamphlet, which the FHA suggests for subdividing land into desirable and thus profitable neighborhoods:

Discourage heavy through traffic.
Plan for extension of major streets.
Traffic should flow toward thoroughfares.
Minor streets should enter major streets at right angles.
Avoid planning of dead-end streets.
Streets should fit contours of irregular land.
Short blocks are not economical.
Long blocks require crosswalks near center.
Plan commercial sites where needed.
Provide school and church sites.
Parks are a definite community asset.
Preserve natural features of site for improved appearance.
Deep lots are wasteful.
Plan lots of adequate width.
Avoid sharp-angled lots.
Plan wider corner lots.
Make lot lines perpendicular to street.
Plan lots to face desirable views.
Protect lots against adjacent non-conforming uses.
Protect residential lots against major street traffic.

The attached cuts illustrate many of these principles.

Managed Operation Cuts Pumping Station Costs

Using Sewers for Storage and Cutting Out Automatic Operation Results in 70 Per Cent Saving

By LOUIS H. MOEHR, C. E.
Superintendent, Wyandotte Pumping Station

WHAT can often be accomplished with existing equipment by a slight revision of operating practices is reflected in the records of the Wayne County drainage pumping station at Wyandotte, Mich. Power costs at this plant were reduced from $9.84 per million gallons in 1931 to $3.00 per million gallons during 1937. This large reduction was accomplished by changing the routine operation so as to level off the pumping peaks by taking advantage of the storage capacity of the system, and by utilizing synchronous motors to obtain power factor credits.

During the first two years of use, the plant was generally operated on the automatic controls. Pumping costs were high, no records were kept, existing recording instruments were not being used, and small induction motors were being operated, resulting in low power factor credits.

The Plant

The Wyandotte pumping station handles both sanitary and storm-water sewage collected from Drainage District No. 5, which includes the entire city of Wyandotte. Surface drainage covering an area of 8 square miles, as well as all the sanitary sewage of this district, is handled by this plant. The plant has a total of nine pumps of five different sizes ranging from 7½ c.f.s. to 250 c.f.s. The five smaller or dry-well pumps can be operated either manually or automatically, the automatic controls being connected to float-controlled switches. The larger or wet-well pumps have no automatic controls. In order to collect the sewage and convey it to the plant, large sewers are required which deliver into the station 28 feet below river level and 20 feet below the deepest structure drained. This deep sewer system affords a storage capacity of over 20 million gallons.

Power for operating this plant is obtained from the Detroit Edison Co. under a primary contract. This contract penalizes the customer for a high demand, which, generally speaking, is the average peak load used during any three hours in any one day. This demand is reset to the minimum of 100 kilowatts the first of every month. The contract also provides for a power factor credit as high as 5 per cent.

Plant Records Studied

In an effort by the writer to reduce pumping costs, a system of record-keeping was installed, recording charts were used and filed, and a study of the plant operation was made. This investigation revealed, among other things, that a large amount of storage capacity in the sewers was available which could be utilized to level-off the peaks in the load by spreading the pumping over a period of a day or more rather than to pump it out as it flowed in.

After a thorough study of the plant and its limitations, the dry-well pumps were watched and controlled during the periods of storm-water flow. Instead of allowing them to continue to operate automatically after the minimum demand had been reached, an estimate was made of the demand which would be necessary to keep the water under control, and this hourly demand was then maintained by manually controlling the pumps. Long experience and accurate records enable the present operators to forecast the required demand very accurately.

Savings Through Managed Operation

This managed operation has shown some very definite results. During the first 26 months the plant was in service, the minimum monthly demand was exceeded 24 times, whereas this minimum was exceeded only 13 times during the next 57 months. The saving accomplished by this is reflected in the reduction of the demand cost from 87 per cent of the total power bill in 1931 to 65 per cent in 1937. A further saving was accomplished by obtaining the full power factor credit of 5 per cent during the last 57 months.

The controlled method of operation was installed under the former Drain Commissioner by the writer. The system has been continued and improved under the present Drain Commissioner, George A. Dingman, who also prepared the preliminary plans for the district.

Last-Minute Rush of Applications for PWA Funds

Shattering all previous records, municipalities throughout the nation filed 12,804 applications for $4,005,904,186 worth of PWA non-Federal projects, in the brief 101-day period allowed for filing applications under the 1938 program, which ended September 30. Of the above sum, $768,298,529 was requested in loans, $1,881,884,891 in grants, making a total of $2,650,183,420; 55 per cent of the total cost of the projects will be made up from local funds.

Twenty-five hundred applications poured into PWA offices on the last day for filing. By plane, automobile and train, representatives of cities and towns hastened to file their applications in a dramatic, last-minute rush. Many of the regional offices stayed open until midnight, and several applications reached the Chicago regional office just before the midnight closing.

Federal funds totaling $828,651,419, for construction to cost $1,503,107,453, have already been allotted for 6,724 projects. The remaining applications will, of necessity, be given speedy consideration because the PWA law requires that all projects be under construction by January 1, 1939.

British Town Planners Discuss Residential Segregation

Constructive Suggestions of Interest to American Cities

By WILLIAM HARTWELL LUDLOW

LARGE-SCALE segregation of factories, humble workers' homes, and higher-priced dwellings, in clearly defined separate areas, is a central principle of town planning in both Great Britain and the United States. In a paper read at a recent meeting of the Town Planning Institute of Great Britain, Thomas Sharp, a younger member of the Institute, vigorously attacks this practice as resulting "in our towns being the dull, characterless and socially ill-balanced places that they are today." Although not opposed to small-scale segregation with large houses on one street, small houses on the next and perhaps some modern, clean factories without smoke or fumes on the next, Mr. Sharp decries the bleak dreariness, maddening monotony and dead-level roof lines in many vast residential sections.

Segregation in Public Housing Developments

Some of the worst instances of large-scale segregation are found in municipal housing estates built by large cities. Becontree outside London, for example, has a working class population of 120,000, almost completely unleavened by contact with other social groups. With such mass segregation, effective leadership in social and community activities is difficult to secure. Lack of even indirect contact of various social and economic groups on the streets or in the shops artificially hardens and stiffens class feeling and tends to increase social and political difficulties. As Mr. Sharp puts it: "We might perhaps be given cause to think on the more than merely alliterative unpleasantness of barricades in Becontree."

Generally speaking, until the rapid growth of cities in the nineteenth century, small houses and large houses stood side by side, or at least on adjoining streets, just as they do today in small towns. With the housing conditions of the poor becoming more and more wretched, and the development of railroads, street cars, subways, buses and automobiles, those who could afford to moved to special sections of their own or out to new middle-class suburbs. When modern town planning began, segregation was well under way and was accepted as inevitable and even desirable.

Mr. Sharp discusses the two reasons usually advanced for density zoning regulations, which result in segregating different types of housing. To the argument that property values are safeguarded, he replies that land values are essentially artificial, and, in the case of class segregation, largely "snob values." He does not believe that planners should encourage snobbism of this sort. To the argument that amenities are established and preserved, he answers that, although the private amenities of middle-class houses may be preserved, the function of the planner should be to preserve the public amenities for all classes instead of the private amenities of a few, especially when those private amenities are based on mere snobbism.

Must Mass Production Bring Over-Standardization?

Mr. Sharp's challenging paper provoked vigorous, almost heated, discussion from members of the Institute. Several, expressing disagreement, pointed out that modern methods of mass production of housing require large areas of standardized buildings. Another attacked the proposal for only one residential zoning density, citing neighborhoods in American cities where shifting of low and middle-class housing resulted in lower property values and, consequently, lower tax revenues. Another objection was that the bad personal and housekeeping habits of some working people made them such undesirable neighbors that well-to-do families would not take houses in the vicinity.

Among the constructive suggestions was the observation that, in order to promote understanding among classes, geographical mixing was not as effective as mixing in some common interest such as dramatics, debating, horticulture, or religious organizations. Varying zoning densities were defended, but arrangement in relatively narrow strips was proposed so that different classes would live in the same neighborhood. In regard to industrial zones, it was generally admitted that too large areas necessitated long transit hauls for many workers. On the other hand, industrial zones must be large enough so that the smoke, noxious fumes and noise attending many manufacturing processes would not affect residential areas. Heavy truck traffic day and night must also be kept away from residence zones.

Application to American City Planning

In considering application of Mr. Sharp's thesis to American city planning, too strict an analogy between English and American conditions cannot be drawn. Large-scale segregation of different types of housing is, however, an imminent social problem here as well as abroad. Eloquent witness is borne by New York's dreary six-story Harlem flats, monotonous jerry-built row houses in Queens, and equally dreary and monotonous Park Avenue apartment buildings with their gold-buttoned doormen. Similar patterns, but on a mercifully reduced scale, are the rule in most American cities. Such segregation has generally come about because well-to-do people will not live in unsightly, squalid neighborhoods. In the planning of new neighborhoods, therefore, where precautions are taken against the repetition of such conditions, provision should be made for houses of various sizes. Especially in the location and development of public housing projects should consideration be given to including sites for housing for somewhat higher income groups. Thus a modern version of the democratic environment of the early New England village would be established in new urban communities.

All Streets in West Palm Beach Are Machine and Hand Cleaned

Cleanliness a Great Asset to This Tourist City, Which Grooms Itself to Please

THE slogan "The Customer Is Always Right" is changed to "The Tourist Is Always Right" when it comes to enforcing the city ordinance forbidding parking on the streets of West Palm Beach after midnight. In the first place, tourists remain to spend their money where they are happy and not unduly molested; and, second, there are no places in West Palm Beach to park the cars of the thousands of tourists who make the city their winter home, if they are forced to take them off the streets; hence the cars remain on the streets to plague the officials responsible for the cleanliness of the city.

West Palm Beach has a population of 34,000 exclusive of the great influx of folks escaping the blasts of winter during three months of the year. There are 200 miles of streets in the city, every mile of which is paved and but 20 miles of which have no curbs and gutters, thus making it impossible for the city to use its Austin-Western sweeper on this small portion of the streets.

To back up the work of the sweeper in the downtown area, four "white wings" work five days a week covering about four miles of streets a day, with some of the more important alleys. A night crew of three men and a truck with driver and a foreman clean around the parks, churches and other public places which are always congested during the day. This crew also works only five days a week.

Sweeper Accomplishments

The sweeper is sent out around Flagler Drive on the lake-front around three in the morning, and north and south Dixie Boulevard is swept next, since most of the traffic of the city traverses this area at some time during the day. The sweeper is used at other times on all the paved streets of the city except those without curbs and gutters. When the Austin-Western pick-up sweeper was first put into operation, the amount of sand picked up was tremendous; this has gradually become smaller and smaller, but will never be eliminated as there is always some tracked in from driveways and excavations. For service in this city, the sweeper was chosen over other methods because it picked up the sand instead of allowing it to get into the catch-basins and thence into the manholes, and settle out in the flat grades of the sewers. It saves a great deal in sewer maintenance, which is not credited to the cost of street cleaning.

In the costs of operating the sweeper given below, considerable variation is shown in the cost of cleaning per mile and per cubic yard because of the method of keeping the accounts. If a new broom filler is purchased in any one month, the cost is charged to that month only instead of being prorated over the time that the filler is actually used by the machine. This also applies to other supplies such as tires and chain drives. Similarly, the same unit figures include the cost of pick-up of the other gutter refuse, which includes heavy palm branches that have fallen into the street, and the costs also include the expense of hauling the dumped street sweepings from the hopper of the sweeper.

Month	Miles Swept	Cu. Yds. Removed	Costs per Mile	Costs per Cubic Yard
1937				
December	470	602	$1.193	$0.933
1938				
January	456	440	1.192	1.235
February	435	376	1.193	0.932
March	372	218	0.867	1.480

The budget for street cleaning in West Palm Beach for the fiscal year October 1, 1937, to September 30, 1938, is $17,835.50. The work is under the direction of D. D. "Dad" Howard, Superintendent of Streets and Public Improvements.

T. R. K.—807.

THE BIG GUN OF THE CONTINUOUS DRIVE FOR CLEAN STREETS IN WEST PALM BEACH, FLA.

Airport Lighting—Why and How

By W. A. PENNOW
Aviation Lighting Engineer, Westinghouse Electric & Mfg. Co., Cleveland, Ohio

LIGHTING on the average municipal airport is quite often inadequate, and altogether too frequently omitted. Department of Commerce statistics show 775 municipally owned airports, only 285 of which have lighting of any kind. Of the airports that have lighting, over 70 per cent have only a beacon, boundary and obstruction lights, leaving about 85 airports that are in a position to handle normal night traffic. But the picture does not end there. Of these 85 airports, nearly half have systems that are inadequate, obsolete, or in need of rearrangement or extensions.

Why Light Your Airport?

In view of these facts, the question as to why airports should be lighted if we are now averaging 165,000 miles of operation per 24 hours and delivering 1,250,000 passenger-miles over the same period with existing facilities, requires a detailed reply. There are several points to be considered in answering that question.

We must consider that if 50 airports have adequate lighting, then the daily passenger-miles average 25,000 per airport. If only a 100 per cent increase in total traffic resulted from a lighting program covering *all* municipal airports, then the passenger-miles per day total would reach 2,500,000—certainly a figure within reason and still large enough to insure a much more comprehensive air transport service.

We must also consider that an airport without lighting ceases to be an airport at sundown, and remains only a useless tract of land until sunup. Worse, it definitely becomes a menace to aircraft normally operated from it, since records show a considerable loss of aircraft and life due to circumstances which prohibited ships from reaching their home port before dark and thus forced them to attempt landings on an unmarked area.

We must further consider that the tendency toward greater airmail and air-express activity is being greatly impeded by insufficient lighting facilities at a great number of airports. Airmail and air express should logically move at night, the interim between business days, to give the greatest benefits, and with present aircraft speeds, no part of the United States need be more than from office-closing-time of one day to noon the next away from any other part in elapsed time. The recent experiments with impromptu feeder air routes during Airmail Week, even though handicapped greatly by lack of night facilities, proved conclusively that at least 75 per cent of the area of the United States can be reached between close of business one day and the opening of business the next. Before such coverage can be accomplished, it will be necessary that a much larger percentage of municipal airports be adequately lighted. Certainly, all cities of 100,000 population or over should have airports with complete facilities, and cities of smaller size that wish to hold their industries or attract new ones should provide facilities adequate for the desired operations.

The Cost of Lighting

It is true that the recent depression and more recent recession have made improvements difficult, and in some cases impossible. It is also true that operation and maintenance of an airport on a 24-hour day basis is expensive. Electric current consumption will average about 100 kw per night, with a minimum of 60 kw and a maximum of about 500 kw for a major terminal. A minimum ground crew for night operations would normally be about $5,000 per year, this being subject to wide variations according to local conditions. Maintenance, including lamps, cleaning and replacement parts, will average $175 per year for materials, with labor consisting of a field mechanician employed full time. Here, again, material cost will vary from about $100 to over $500, depending on the extent of the installation. These figures do not include any equipment replaced as a whole, only normal breakage and wear being considered. The obsolescence allowance, or depreciation fund, should be set up on the basis of complete replacement, including installation costs, over not more than a 10-year period. Seven or eight years is a better figure, since it permits modernization before obsolescence becomes too serious. Installations of underground cable, if made with proper cable and if future extensions are considered, may be set up on a 25-year replacement basis. There are only a few types of cable that are satisfactory for this extended replacement basis, and it is well that this be carefully checked before the schedule is established.

From these various figures we can expect that on the average airport an operating maintenance and replacement expense of about $17,000 per year must be added to the normal daytime operating costs in order that the airport may be classed as a true aid to navigation and be useful during 24 hours of every day.

Airport Income

Many municipal governing bodies have the idea that an airport not only should be self-supporting but should pay dividends as well. If this were possible, there would be very few, if any, municipally owned or operated airports. Private capital is quick to finance any venture that will pay a return on a given investment. Airports must be considered as public conveniences and public necessities, just as are streets, libraries, stadiums and other municipally owned enterprises that make a particular city a better place in which to live and do business. Airports have the added advantage of paying at least part of their operating expense. Revenue is derived from rentals, percentages of ticket sales, profit on sales of gas and oil, concessions, and storage fees for private aircraft. Some municipalities use a landing-fee system in an effort to increase revenues, but this invariably results in a decrease in private flying activity, and the resultant loss of revenue for storage, gas and oil is greater than that produced by any type of landing fee. The imposition of a landing fee may be likened to

A 36-INCH DOUBLE-END AIRPORT BEACON

placing a toll on all transient motor vehicles that use the streets in traveling through a given city, and the results are the same—detours are very much in order.

As airports come under the same public convenience classification as streets, it is just as important that they be lighted for night travel, and more so because of the speeds involved.

Further, the number of residents of any municipality who are using aircraft for pleasure or private transportation is steadily increasing. Registries of private pilots and privately owned aircraft grow larger every year, and the municipality must soon consider the needs of this ever-growing group of first citizens to the extent that it has considered the needs of the motorists at present.

The Evolution of Airport Lighting

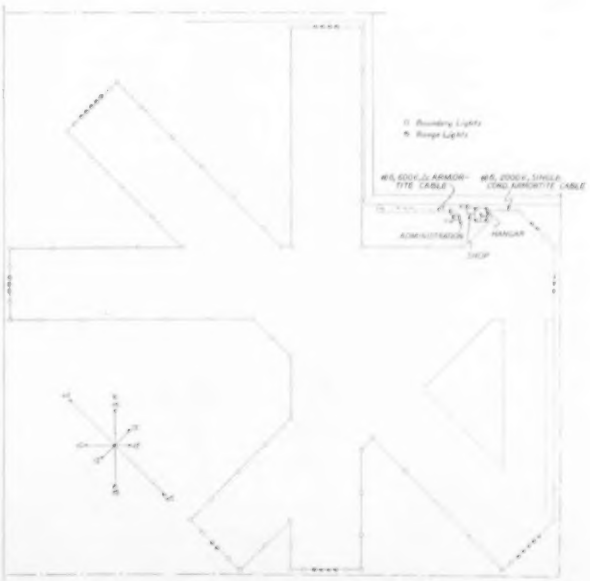
In earlier days, airport lighting was a subject that very few people professed to know anything about. Standardization was given little consideration, and each of those who did profess to know anything about the problem had his own ideas that were put forward and aggressively advocated. This trial-and-error method was necessary during the growing period, and from this hodgepodge of ideas has come a standardized method, the result of years of experimentation and development by the several aeronautical branches of the Federal Government in conjunction with manufacturers, airlines, commercial operators and the Illuminating Engineering Society.

Definite specifications now apply to nearly all the equipment used in lighting an airport, and if these specifications are strictly adhered to, the municipal engineer need have no worries as to the adequacy of the equipment he is using, or proposing to use. These specifications are all based on minimum permissible requirements, leaving plenty of room for advances in the art as they appear, but insuring that only the best possible performance and quality now available will meet the present minimums.

The Beacon

The first step in any airport lighting system is the installation of an airport beacon to identify the airport, boundary lights to indicate the shape and extent of the area available for landings, and obstruction lights to indicate natural or man-made hazards that must be avoided during an approach to the airport. The installation of this group of equipment permits limited night operations in fair weather with aircraft equipped with landing lights and operated by pilots experienced in night flying. The airport beacon must show at least six clear flashes per minute, and must either show alternate green flashes or be supplemented by an auxiliary beacon to give the green characteristic. The most economical method of meeting these requirements is to install a 36-inch double-end beacon. This beacon gives a clear flash of over one million candlepower, and alternate green flashes of over 200,000 candlepower, with a current consumption of about 600 watts, using a single 500-watt lamp to produce both beams.

The second-best method is the 24-inch double-end beacon which requires two 500-watt lamps—one for each beam—and a little more wattage in the operating mechanism, using about 1,150 watts, and requiring twice the lamp replacements. The third is the 36-inch spherical beacon, better known as the Bartow Beacon, which gives two additional characteristics that are helpful in certain atmospheric conditions such as low flying clouds. This beacon requires one 1,000-watt lamp and uses about 1,100 watts. It is more costly initially than the other beacons described. The least desirable and most expensive to maintain, although cheapest initially, is a combination of a single-end 24-inch beacon using one 500-watt lamp and an auxiliary code beacon for the green indication, this using two 500-



TYPICAL BOUNDARY AND RANGE LIGHT INSTALLATION ON AN AIRPORT HAVING LANDING STRIPS

watt lamps which are flashed. This combination requires about 1,200 watts, and replacements for three lamps must be considered. This combination does have the advantage of giving a definite code identification peculiar to the airport involved, but it is comparatively short range. Of the four combinations discussed, only the first is capable of greatly increased range, often necessary where the airport is surrounded by competing lights. Increases in candlepower are made by using lamps of larger wattage, such as 1,000, 1,500 or 2,000. The other three combinations are limited by size or design to not over 1,000-watt lamps, and the candlepowers obtained are considerably lower than from the 36-inch unit with equal wattage lamps.

Boundary Lights

The type of boundary system to install is dependent on the extent of the area as it now exists and as it may be extended. It is most important that the final area be considered, for extensions may become quite expensive if the system installed is not capable of expansion. A good "rule of thumb" is to use a series system when the perimeter of the final area is 12,000 feet or over, and on less than 12,000 feet where the distance from the power supply to the opposite midpoint or one-third and two-thirds points exceeds 2,000 feet. These points may vary up to 500 feet from true locations in the perimeter. If the shape and extent of the field is such that additional feeders may be run to the approximate midpoint or one-third and two-thirds points on the perimeter, it is more economical to use a multiple system. In any case, all multiple boundary circuits should be three-wire, 230/115-volt, with alternate lights on opposite 115-volt circuits.

On existing boundary circuits where extensions are to be made, several courses are open. If the boundary circuit is a series system, extensions usually may be made by simply cutting-in the additional length of circuit. In cases where 600-volt cable is now installed and supplied by a 2- or 3-kw constant-current regulator, it may be necessary to change the regulator to a 5-kw rating in order to carry the additional load. If first-grade cable was installed originally, satisfactory operation usually results when a protective circuit relay, designed to open the primary circuit to the regulator if the secondary is accidentally opened, is used with the larger regulator. Some trouble may be encountered due to old defective splices, but these may be easily located and corrected. Reducing lamp size in all boundary fixtures with clear globes to the newly available 320-lumen lamps usually releases sufficient regulator capacity to carry the additions to be made without exceeding a 5-kw total in the revised boundary circuit. If not, the only other alternative is to use two regulators, feeding each end of the circuit and grounding the midpoint—this permits as high as 10 kw in the circuit. It is necessary to use refracting type glassware on the boundary units when the 320-lumen lamp is used, but the savings in current consumption justify this expense.

Where the existing boundary circuit is multiple and the copper size is such that additions will introduce excessive voltage drops, or the arrangement is such that some boundary units will be more than 4,500 feet from the supply source, it may be necessary to use 550 volts, single-phase, where two-wire cable is installed, or 550 volts, three-phase, where three-wire cable is in use. Individual transformers, rated 60-volt amperes, 550-volt primaries, and with secondaries having taps to provide 110, 115, 120, 125 or 130 volts, must then be used at each fixture, with the secondary tap giving the nearest voltage corresponding to the lamp voltage connected to the socket. This voltage should be determined at night with the circuit lighted. These transformers are small and comparatively inexpensive, usually consisting only of core and coils, and may be installed in an earthenware or glass jar filled with an asphaltic compound if located below the frost line, or in a metal container properly anchored and similarly filled if in areas where frost may be encountered. Both primary and secondary of these transformers must be fused, the primary with 6-ampere maximum, and the secondary with 3-ampere maximum. The secondary fuse may be mounted in the fixture to facilitate replacement, but the better procedure is to mount both fuses in the container with the transformer. The added circuit protection is worth the additional inconvenience of replacement.

Boundary lights should be spaced not over 300 feet apart, and the arrangement should be such that all angles and corners are clearly shown. In some cases, spacings as close as 50 feet may be necessary to clearly show a portion of the field outline. The diagram on page 65 shows how spacings may vary, depending on the physical appearance of the perimeter.

Range Lights

Range lights should be used in addition to boundary lights to indicate the ends of runways or landing strips. Where the field is substantially square and no runways are provided, range lights may be used to designate favorable approaches. The diagrams show arrangements of range lights under different conditions. Spacing between range lights for any location should not exceed 100 feet, and the lights may be as close together as 50 feet, and nearer where necessary.

(*To be concluded in the December issue*)

Municipal Ownership Can Lead to Unfair System of Taxation

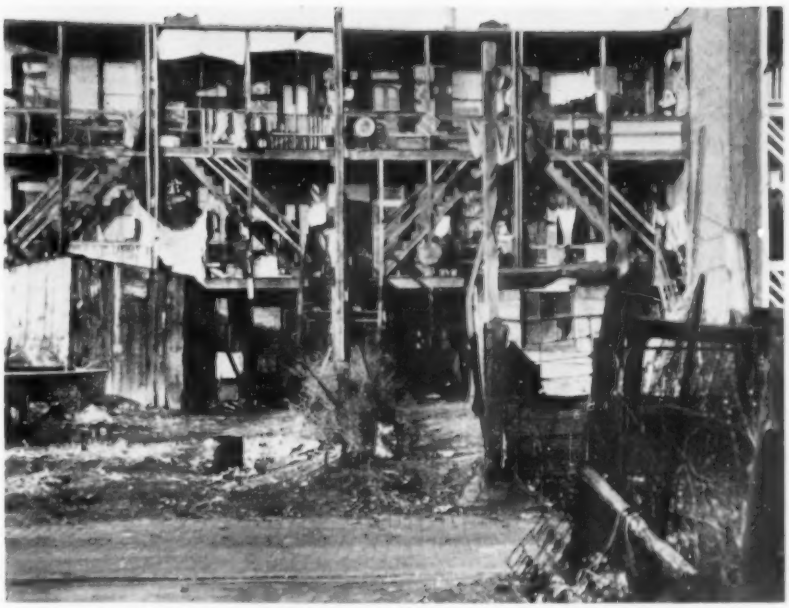
MUNICIPAL ownership of utilities is not automatically the solution of financial difficulties of cities and it can lead to an unsound system of taxation, according to Harry E. Jordan, Secretary of the American Water Works Association, in a statement recently made.

"Much confusion exists about municipal ownership of utilities because each year a few cities receive nation-wide publicity that the water or the light plants pay most of the cities' expenses, rendering other taxes unnecessary. If revenue from a publicly-owned utility is used to supplant other taxes, then the tax system of the municipality is on an unfair and unjust basis," says Mr. Jordan. "A poor family in a cottage pays in its water or electric rates a part of the taxes which properly should be borne by the rich realty owner who lives in a mansion.

"Certainly the rates paid for water or electric current should not include charges that properly should be borne by general property. Municipal ownership to be successful—and it can be successful—should be carried on so that the rates are fair and reasonable, covering the cost of operation, debt service and reserves for future needs. Taxation through municipal utility rates is not a fair basis for apportioning city administrative costs."

Camera Contest Rouses Housing Interest

By HELEN T. STEINBARGER
Consultant in Adult Education,
The Public Library,
Washington, D. C.



DISGRACEFUL HOUSING CONDITIONS IN THE NATION'S CAPITAL
Rear view of a row of slum dwellings typical of many in the District of Columbia. First prize picture, submitted by James L. Norris and H. E. Caranfa

A SUCCESSFUL experiment in visual education made to focus attention on the deplorable housing conditions in the National Capital may furnish an idea for other city officials to use in arousing public interest in their local housing problems. The project was developed by the Washington Housing Association in cooperation with the Public Library, where the idea originated.

Washington is conceded to be one of the most beautiful cities in the world, made so by the impressive grandeur of the Government buildings. However, there is another side to the picture. The District has sections which are unrivaled in the number of houses unfit for use or in need of major repairs.

Two local agencies have directed all efforts toward changing this condition. The Washington Housing Association is a non-governmental agency, supported by the Community Chest. It has as its purpose the improvement of housing conditions in the city, particularly among families of low income. To accomplish this, the Association cooperates with other agencies, social and civic, and those of the District and Federal Governments. It supports needed housing legislation.

The Alley Dwelling Authority for the District of Columbia is an agency set up by an Act of Congress to eliminate slum areas. In the fall of 1937 this organization had preparations under way to submit amendments to the original Alley Dwelling Act, to the Congress at the next session. This was the proper time for all agencies interested in housing problems to cooperate in arousing public interest.

To that end, the Washington Housing Association and the Public Library invited amateur photographers of the city to take part in a contest featuring good and bad housing in the metropolitan area of Washington. During the first two weeks that the contest was in progress, the Central Library, four branch libraries and one neighborhood house showed pictures by professionals. These were obtained from the District and Federal Government agencies, and the local newspapers. They gave contestants the opportunity to study the kind of picture desired before they took their own pictures.

From the large number of photographs of all types and sizes submitted in the contest, 15 were selected by the judges for submission to the public. The judges were made up of specialists in housing or photography, or both.

Before displaying the 15 chosen photographs, the Association enlarged all of them to a uniform size, 11 x 14 inches, and then invited Washington citizens to visit, during the next two weeks, any one of the six exhibits and vote on the best photograph. Winning photographs remained on exhibition an additional two weeks. This concluded, it should be noted, a six-weeks display devoted to housing, beginning with the pictures by professionals and ending with the prize-winning pictures submitted by the amateurs.

As the result of hundreds of votes cast during the public judging, the picture here reproduced won first prize by a large majority. Participants were asked to "vote for the picture you think tells the best story of good or bad housing and at the same time is the best from a photographic point of view." Friends of the Housing Association donated the necessary funds for four small cash prizes.

Very skilful leadership, of course, piloted the amendments of the Alley Dwelling Act through the Congress. The Housing Association believes that the contest was a great help in getting the amendments passed without a dissenting vote in either house.

The widespread interest created during the contest has continued through the 68 exhibits which have followed. Requests for exhibits from many organizations are being received by the Association. According to the September 12, 1938, issue of NAHO *News*, "this contest in amateur photographs of housing conditions is the first use known . . . of this device in a program of local housing education."

Reducing Water Waste in a Metered System

Cambridge Reduces Loss from 2,500,000 Gallons to 75,000 Gallons Daily Through Monthly Inspections

By TIMOTHY W. GOOD
General Superintendent of Water Works, Cambridge, Mass.

TWENTY years of experience in the Cambridge Water Department confirms my belief that the owners of property welcome anything which a water department will do to reduce excessive use or waste of water. We employ a regular force of ten inspectors, whose duties are to make monthly inspections of all fixtures and to read meters. These men are specially trained and are not appointed to their positions until they pass a rigid civil service examination conducted by the Massachusetts Civil Service Commission.

The Water System

Ninety-nine per cent of the supplies of the services in Cambridge are metered. These include 13,687 domestic and industrial services, 79 services to public buildings and for other city use,—no charge, however, is made to the city for water used for any purpose,—and 66 fire supplies, making a total of 13,832 meters. In 1937, the last year for which a complete report is available, leaks reported by inspectors were as follows:

Wash-basins	191
Bathtubs	186
Set tubs	237
Kitchen faucets	868
Water-closets	767
Total leaks reported by inspectors	2,249

The number of leaks reported at the Water Department office and at the water yard by various people other than inspectors were as follows:

Main pipe	27
Gates	9
Supplies	114
Hydrants	1
Fire supplies	1
Total leaks reported at the office and water yard	152

This makes a total of 2,401 leaks reported by inspectors and others during 1937.

Inspections Permitted

The authority for a water-works meter reader and inspectors to enter private property comes from a city ordinance reading as follows:

(1) The following regulations shall be considered a part of the contract with every person who takes the water; and every such person, by taking the water, shall be considered to express his consent to be bound thereby. These regulations shall be printed upon every bill for water rent, and whenever any one of them is violated (notwithstanding two or more parties may receive the water through the same pipe) the Chief Superintendent, under the direction of the Board, shall cause the water to be cut off, and it shall not be let on again except upon payment of $2 and all chargeable rates; and, further, in case of any such violation the Board may declare forfeited any payment made for the water, by the person committing such violation, and the same shall thereupon be forfeited.

(2) All persons taking the water shall, at their own expense, keep the service pipes within their premises in good repair and protected from frost, and they will be held liable for all damages which may result from their failure to do so.

(3) They shall prevent all unnecessary waste of water, and there shall be no concealment of the purposes for which it is used.

(4) No alterations shall be made in any of the pipes or fixtures inserted by the city, except by its agents, who shall be allowed to enter the premises supplied to examine the apparatus and to ascertain if there is any unnecessary waste; and no plumber or other person shall make any alteration or extension of the pipes in any house or on any premises without first giving notice to the Chief Superintendent, and procuring a written permit from him which shall be returned to the Chief Superintendent within ten days after the completion of the work, endorsed with a statement of all fixtures added or removed. Any person violating this regulation shall be fined not more than $20.

(5) The Chief Superintendent, with the necessary agents and assistants, may enter the premises of any water-taker to examine the quantity used, and the manner of use, and to cut off the water for non-payment of rents or fines, or for any violation of these regulations.

(6) An owner or occupant of premises in which water furnished by the city is used, who fails to keep his service-pipes and fixtures in good order, and neglects to repair the same within three days after they have, from any cause, become defective, or who neglects to shut off the water after using it, so that it runs to waste, shall be liable to a fine of $2; and if such fine is not paid within two days from the time when the person incurring it receives notice that he is liable thereto, the water shall be cut off from his premises, and shall not be let on again until the waste is stopped and the fine paid, together with an additional sum of $2 for cutting off and letting on water; and in case of a second offence during the same year, a fine of $4 shall be imposed, and if it is not paid within two days, as aforesaid, the water shall be cut off and shall not be let on again until the cause of complaint is removed and the fine paid, together with $2 for cutting off and letting on the water; and in case of a third offence, the water shall be cut off and shall not be let on again except by a vote of the Board and the payment of such fine, not exceeding $10, as the Board may impose.

(7) The Board shall have the power to decide what shall be considered a waste or improper use of water and to restrict the use thereof when it may deem it necessary; and if the water-taker refuses or neglects to comply with any order of the Board, after notice given to him, the water may be cut off and shall not again be let on except by a vote of the Board, and the payment of such fine, not exceeding $10, as the Board may impose.

(8) The Board shall have the power to restrict the use of hand hose to such hours of the day as it may deem necessary; and for any violation of such restriction the occupant of the premises shall be liable to the penalties imposed in the preceding section for a waste or improper use of water.

(9) The Water Board, with the necessary agents and assistants, shall have access at all times to the premises where the city water is used, for the purpose of setting, testing, repairing, and reading meters."

Procedure

Whenever an inspector reports a use of water over 10 per cent of the amount used in a previous quarter, a notification is sent to the owner of the property, stating that "there is a leak on the premises" and ordering him to make immediate repairs. If the use shows much in excess of 10 per cent, the Chief Inspector visits the premises, finds out

where the leak is, and gives the owner orders to make immediate repairs or water will be shut off from those premises promptly.

Except in the case of underground leaks, the average amount of water wasted on 2,401 leaks discovered by Water Department inspectors would have amounted to approximately 2,500,000 gallons per day if allowed to continue. But through the insistence of the Water Department on immediate repairs, the average leakage is now less than 75,000 gallons per day.

New Collection Trucks for Birmingham Garbage

Two Types, for Long and for Short Hauls, the Latter Built of New Lightweight Steel

By GEORGE R. BYRUM, Jr.
Superintendent of Streets and Garbage, Birmingham, Ala.

THE city of Birmingham recently standardized on two types of garbage trucks, characterized by unusually low mounting height. One type is of 10 cubic yards capacity, for long hauls and bulky loads, and the other is of 6 cubic yards capacity, for short hauls. The low mounting height of the trucks is made possible by the use of dual-cylinder, telescopic hoists which permit the body floor of each truck to rest within about 5 inches of the top of the truck frame.

The mounting height of the long-haul trucks is about 10 inches below the height of those formerly used. This makes for much easier loading by the men in the garbage department. It also puts the load down close to the ground, and reduces the side sway of the truck chassis and rear tires, thereby giving more tire miles.

Long-Haul Trucks

The bodies for the long-haul trucks are of our own design and are made of 10-gage blue annealed steel, 138 inches long inside, 80 inches wide, and 37½ inches high, with a 12-inch extension at the front and back down the side for about 36 inches, installed to protect the cab and keep the wind out of the body. The tailgate is designed to hinge at the bottom, being level with the body floor when lowered. This adds about 40 inches to the length of the body, making it easy to dump into pits.

As another feature, the bodies have a 12 x 36-inch swinging gate on each side which can be lowered when loading, making it easy to lift heavy cans over the sides. Like most dump-trucks, the bodies have a flange on top of the sides, but with an extra channel over the flange to reinforce the top of the sides. Other equipment includes 6-inch running boards the full length on each side of the trucks, with hand-rails and steps, making it possible for workmen to get on and off easily. The bodies also have round wheelhousings about 6 inches high. Garbage does not hang on to these round housings when sliding out of the truck at the dump. The subframe for the bodies is built of 3-inch channel cross-members with 5-inch longitudinal I-beams.

Short-Haul Trucks

The trucks for short hauls have an extremely low loading height—only 62½ inches, achieved by the use of a dual-cylinder direct-lift hoist which fits in between the frame rails, and also by use of specially designed bodies.

A feature of the bodies is their construction of Cor-Ten steel, a new product of the U. S. Steel Corporation, produced in this concern's subsidiary plant in Birmingham. This product made lighter bodies possible. It is also more resistant to rust. The new bodies are 11 feet long inside and 80 inches wide, with 27-inch sides and a 54-inch front. Sheets of 12-gage Cor-Ten steel were used for the sides and floor as well as the cross-members in the subframe. The only structural steel used in the manufacture of the bodies is in the body longitudinals and angles used to reinforce the tailgates. The subframes are special pressings of Cor-Ten sheets, and the saving in weight here alone was over 300 pounds.

These light-weight, low-mounted trucks are also equipped with steps and running boards and round wheelhousings. The tailgates are hinged at the bottom and swing down from the top for easy dumping. The front end of the bodies is cut down the sides on a double curve. A rack is provided on one side at the front for a shovel and on the other side for a fork. Round corners on the front of the

ONE OF THE INTERNATIONAL LONG-HAUL GARBAGE TRUCKS WITH WOOD HYDRAULIC HOISTS, USED IN BIRMINGHAM, ALA.

bodies and the curve at the top were used for appearance. The bodies are all arc welded, with no rivets or bolts in any part; therefore they are watertight. The cab-over-engine chassis makes for economical use of space and easy turning in close places.

Our experience so far is that we can save an hour a day in the use of the long-haul trucks over those formerly in use. They are easier to load and their loading capacity is greater. In addition, our operating expenses have shown a decided reduction.

Hoists for the new trucks were furnished by the Alabama Truck Equipment Co., distributors for Gar Wood products. The long-haul trucks are Macks and Internationals, and the short-hauls are GMC. The bodies were built from our specifications by the Yeager Manufacturing Co., of Birmingham.

Bituminous Pavement Repairs in New York State Cities

The Results of a Study by the Conference of Mayors of the State of New York

THE causes of cracks in cold-mix, cold-laid bituminous pavements and in rock asphalt pavements, and the methods and costs of maintenance in New York State cities, were made the subject of a study recently by the Bureau of Municipal Information of the Conference of Mayors. The replies from various cities are given below.

Rochester.—The city of Rochester requires a five-year guarantee on asphalt pavements, including the curbs, during which period the pavement must be maintained by the contractor in accordance with the guarantee requirements. Rochester believes that any good asphalt pavement should require practically no maintenance, except possibly the filling of cracks with asphalt during the first five years of service. In a number of cases, where the pavements laid under contract have hair-checked or cracked during construction, the contractor has been required to surface-treat the entire pavement in such areas by the use of asphaltic road oil, covering this with sand or stone grit, so as to seal the hair cracks and provide a uniform appearing surface. In one case, the contractor treated the pavement with an asphalt tack coat and surfaced it with a thin covering of hot asphalt paving mixture commonly known as skin patching. Both these methods, when properly done with proper materials, seem to be satisfactory.

The method used by the Division of Operation and Maintenance in Rochester, where the old pavement is in satisfactory condition so as to serve as a base, is to make whatever base repairs are necessary, raise the manholes and other street castings to proper grade, clean the pavement thoroughly and spray on an asphalt tack coat, casting over this tack coat the asphalt mixed surfacing material to prevent the tack coat from being picked up by the tires of trucks or the feet of the workmen. Then a leveling coat of the hot surface mixture is rolled on, followed as soon as possible by the wearing surface with a thickness of 1½ to 2 inches, thinned at the gutters if necessary, to maintain the curb height. At present a hot asphalt stone mixture called "fine graded aggregate asphaltic concrete (non-skid) surface mixture" is used, which has replaced the older stone-filled sheet asphalt, or modified Topeka, formerly used by the city in this resurfacing work. Numerous streets are being satisfactorily resurfaced in this manner over the street-car tracks, where the tracks have been abandoned owing to the growing use of buses.

On some WPA work a Colprovia topping mixture with State Type-3 mixture, formerly known as Amiesite, is being used for leveling or binder courses. Since the Type 3 mixture hardens through loss of a volatile, a short period, only two or three days, is ordinarily allowed for curing in place before the top wearing surface is placed. This is a precautionary measure, and experience may prove that it is unnecessary to allow this period for the evaporation of the volatile in the binder or leveling course mixture.

Rome.—For the past several years the hot-laid bituminous pavements in Rome have been repaired by contract with Warren Brothers Roads Co. The only thing the city does with cracks is to fill them with hot asphaltic liquid. This is not satisfactory, but is about the only thing that can be done at low cost. The cracking is not stopped by sealing the cracks. The pavement cracks because the understructure is being disturbed. Perhaps the pavement top is brittle and not enough tar or asphalt is present to make the pavement sufficiently flexible.

Kingston.—Many of the streets of Kingston were constructed with a Willite surface without adequate foundation, and in some cases with none at all, which has produced an aggravated condition. Two of the main streets of Kingston which had adequate foundation and Willite top surfaces were covered with Kyrock varying in thickness. It was decided this year that the number and conditions of these cracks through the Kyrock would result in further damage to the pavement surface, and it was decided to fill them. The material used was Colprovia, both CP-1, a sheet mix, and CP-2, a mix with 1A stone in it. The deeper and wider cracks, usually with depressions surrounding them, were filled with CP-2, and the narrow cracks with CP-1. This material, even if an excess should be used, will feather out under traffic without any resulting bump.

The greater mileage of Willite pavements was not covered with Kyrock and, since its supporting power was inadequate, the number and depth of cracks greatly exceeded those of the two main streets. About four years ago two of

these uncovered Willite surfaces were treated with surface treatment cut-back and 1A stone. In advance of this treatment the wider and deeper cracks were hand-filled with cut-back and 1A stone, a slow process, which would be greatly speeded up with the proper apparatus. These pavements have needed no maintenance since that time, but now require another surface treatment the same as before, except that no preliminary crack filler will be necessary. The cracks begin to appear through this light surface treatment the second year, but no breaking up has occurred as yet. Some of this type of pavement has been allowed to go untreated so long, and is so badly broken up into small irregular-shaped pieces, that the surface treatment used will not be sufficient in depth, and it is proposed to cover the pavements with ¾-inch of fine mix MM-3 or CP-2 Colprovia. A section of a main highway with a Willite top at the entrance to the city was recently covered with retread, but there was no curb and the width of the pavement was only 18 feet. The costs on retread run about 50 cents a square yard, whereas the light surface treatment does not exceed 15 cents a square yard. About 0.4-gallon per square yard and 25 to 30 pounds of 1A stone per square yard were used. Inasmuch as the ¾-inch cover has not been tried over these pavements, it is not known whether or not variable depth and unequal compression over the cracks will result in slight depressions under traffic. If this does result, a preliminary treatment similar to that used on the less badly broken-up surface might be advisable. This method will prolong the life of the pavement at least five years.

Cortland.—No construction of patent pavement is used in Cortland. Only hot-mix asphaltic pavements are used, which have been found not to crack if properly mixed and laid and no failure of the base occurs. In old pavements in which cracks have occurred, no permanent method of sealing has been found. Sealing by the use of light asphaltic cut-back each year is the method used.

Geneva.—Some of the sheet asphalt and some asphaltic concrete in Geneva has cracked to some extent. The cracks are treated by removing the dirt with a thin iron hook, sweeping, and then filling the cracks with hot asphalt, using a special pot designed for that purpose. During the pouring of the hot asphalt a little sand is applied so as to keep the asphalt from running. This scheme seems to work out very well.

Binghamton.—Sheet asphalt, Bitulithic, Warrenite, Colprovia and Type 4 or Amiesite are the prevailing asphalt type pavements used in Binghamton. Between $12,000 and $15,000 a year is spent for maintenance.

Olean.—In making repairs to sheet asphalt pavements, the fine cracks are poured with New York State Item 69, and then a light application of fine Colprovia is raked on. If possible, the entire pavement is given a surface-treatment application with 0.25-gallon per square yard of Item 69 or 70 and 20 pounds per square yard of No. 1A limestone chips. This last step was new with Olean this year.

Buffalo.—Cracks in bituminous pavements are blown out with an air compressor and filled with asphaltic cement. It has been found that if the cracks are cut out, in the spring there will be two cracks. Ninety per cent of the cracks filled as above open up in the spring.

Ithaca.—Ithaca has not been particularly troubled with the cracking of asphalt pavements. When such cracks do occur, they are patched with asphalt emulsion and No. 1A stone.

Jamestown.—Such cracks as do occur—and they are very few—are filled with a brick filler.

Poughkeepsie.—Most of the cracks in bituminous pavements are filled with a binder, but a sheet Amiesite is considered preferable. Cleaning out the cracks and then applying a slight covering of emulsion, followed by filling with sheet Amiesite and rolling, is considered the best method.

Yonkers.—The greater part of the permanent black top paving in Yonkers is Bitulithic, and there has been no difficulty with cracks in this pavement.

A Mayor's Hobby

GREENLEAF, KANS.—This town has much to be proud of in Mayor Henry H. Kappleman, who doubles as the town's only blacksmith. When Mayor Kappleman, now serving his third term, took office, Greenleaf's indebtedness was over $50,000. Only a mere $2,000 is the entire debt of this thriving town at present, and it won't be long ere this too will be wiped out.

Besides acting as Mayor and blacksmith, His Honor has quite a hobby in his rapidly becoming well known rock garden. In it he has a rock from every state in the Union and from each of eleven foreign countries. Two of his prize specimens are a piece from the Great Wall of China and a bit of rock sent him from Admiral Byrd's second trip to the South Pole. Such bits as floating rocks and sinking wood are also found in this garden.

Mayor Kappleman's wife and two daughters assist him with his hobby, which, since he first began registering visitors in 1936, has been viewed by over 5,000 persons.

GEORGE E. BERGMAN.

Is Your City Nameless?

By EUGENE VAN CLEEF

IF you are an official, a member of a chamber of commerce or other civic body in a very large city, you may not be interested in this discussion. Your city may be a terminal and hence known to those persons who enter it. This article is addressed in particular to those officials or other citizens who are largely responsible for the progress and growth of small centers seeking a place in the sun and perhaps ambitious to grow to great size and influence.

"What Town Is This?"

Do you know that your trade center is probably less familiar to the general public than it has a right to be, because thousands who ride through on the train never see the name? Perhaps you have been among those who have asked, "What town is this?" If the train made no stop, the station sign was too small to be read while passing at high speed; or it was too badly located to be seen at all. There was no time to explore for its location or, if found, the train coach had moved so far beyond the sign, it could not be interpreted. Perhaps you consulted your time-table, but if the train was not on schedule you attached the wrong name to the town. If you asked the train porter, he may have told you that this was his first trip on that section and hence he was still unfamiliar with the small towns where no stop was made. If you rode in a day-coach, you may have sought out the conductor for information, only to find him when the train had passed many miles beyond the town and through others, making it difficult to explain to him just which town you wanted to know about. Or you may have been unsuccessful in locating the conductor, lost interest and bothered no more to ascertain the town's name.

Sometimes, enterprising manufacturers or retailers located within sight of the right-of-way erect large signs to advertise their wares or perhaps only their name, and incidentally display the name of the city. Sometimes the local name is incorporated in the company name. Here are sources of information—in the daylight hours, at least. If illuminated, of course they will serve at night too. But such signs are not always reliable sources of information.

As I write these words riding on a transcontinental train, we have just made a station stop. I have asked the Pullman porter, "What's the name of this place?" Our train is so long that my car is far from the station and the sign invisible. "I don't know," he says, as he looks out the window to try somehow or other to identify the town. "O, yes," he recalls after seeing a sign on the side of a frame building reading "Woodward Flour and Feed Co." "This is Woodward." He is right, but I could not have been certain when I saw the name that Woodward was not the name of the proprietor of the company rather than of the local community.

We referred above to illuminated advertising signs as useful after dark. Nearly all railroad station signs serve only for the daylight hours. That is unfortunate. In many parts of the United States visibility of non-illuminated signs is poor, if at all possible, until about 8 A.M. and in the late afternoon after 5 P.M., or (on cloudy days) even after 4 P.M. This is particularly true during the winter season. Passengers are alert before 8 A.M. and after 4 P.M. Hence lighted signs are a requirement if we would have them read the name of our town.

As a city official or just a plain "booster," you may consider these remarks of no particular application to yourself. You may feel they should be addressed to the railroad officials—your concern is with the motor highway and, having placed signs at the entrance to the city, your duty is done. You may even have been responsible for recording the city's name on the roofs of buildings for the benefit of aviators. But your responsibility does not cease here. The railroad company actually doesn't need a name on the station in order to operate successfully. Numbers would be less cumbersome. The railroad officials are merely accommodating the passengers.

The Advantages of a Named City

The advantages of a named city are legion. Persons "passing through" may see certain elements which make an appeal. Parks, playgrounds, public buildings, civic centers, broad streets, a particular industry, hotels and still other features may so impress them that they will wish to make note and return some time for detailed investigation. If the observer cannot identify the city, the impression is lost forever so far as that city is concerned. There is lost a potential advertiser, a prospective customer, a future valuable permanent resident. For that man the city may as well not exist. Comments or events associated with that center, which he may read about in days to come, will have much less value than they would, had the man read the name of the town as he passed by. He would have a visual impression linked with the name, which would last a long time and be associated readily with his reading of news items or his hearing in conversation, in the movies, over the radio or under other circumstances, statements concerning that community.

It is up to the mayor, the city council, the chamber of commerce, the service clubs and many other individuals or groups to assure themselves that their town has a name—a name that people can read. At the railroad station signs with city names should carry letters that can be read several hundreds of feet away. The signs should be at train window level and not at the tops of station roofs or eaves. They should be erected at points 500 feet or 1,000 feet from the station as well as along the platform. They should be visible day and night. Signs should be far enough removed from the track so that they may be read when one passes them close by as well as at a distance.

The effectiveness of this type of advertising cannot be measured quantitatively; but there can be no question concerning its value in the long run. The cost is almost negligible in proportion to probable returns. No progressive city can afford to go nameless. What will your city do about this?

Two-Mile Sea-Wall and Boulevard Completed in Tampa, Florida

This WPA Project Protects Valuable Property and Creates a Wider Waterfront Parkway

IN 1921 Tampa felt the necessity of protecting property values of over a million dollars along the Bayshore Boulevard which were endangered by each successive southwesterly storm because of the progressive failure of the old gravity-type concrete sea-wall by scour and teredo attacks upon the supporting wood piling. The old wall, built in 1907, was placed in real jeopardy by the backwash of the hurricane of 1935 which swept the Florida keys. Immediate steps were taken to build a new wall, and by the end of the year a 5,000-foot sea-wall project had been approved by WPA. Later extensions easterly and westerly were granted in 1936, so that now Tampa has an 8,800-foot wall, which with the new double drives on Bayshore Boulevard, each with two lanes and a parking lane, comprise an $800,000 improvement of practical value and esthetic charm.

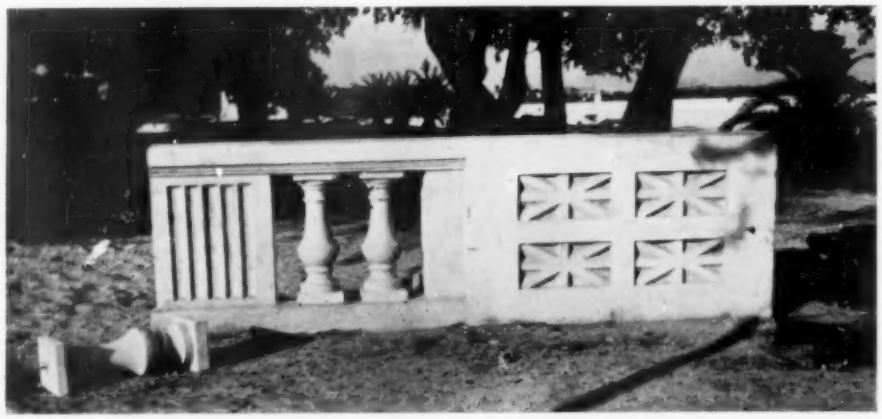
Features of the Wall

The new wall was specially designed with the top 5½ feet above mean low water, and with the lower section at 45 degrees with the vertical tending to drive the waves upward and the top section directing the waves outward, throwing them back onto the next wave, thus aiding in eliminating scour at the base. The top section is a parabola composed of a series of multi-center curves. At the base of the wall a toe 1 foot 9 inches high and 3 feet deep from front to back is cast on a continuous vertical cut-off wall of interlocking steel sheet piling driven into hard bottom a distance averaging 6 feet below the footing. This continuous wall will act as an effective cut-off and check teredo attacks on the bearing piles driven 1 foot 9 inches and 8 feet 11 inches from the front of the footing.

In addition to the wave-checking action of the wall, it has another outstanding feature of design. Inasmuch as the work was to be done entirely by unskilled workers from the relief rolls, great care was taken to provide a design and methods of construction that would be as foolproof as possible. In the first place, the amount of concrete was cut, removing the wall entirely from the gravity class and making it depend for its strength on the form and direction of the forces acting upon it. The final design has an almost uniform thickness of 13 inches. The forms for the concreting were carefully planned by the designing engineer in such a manner that they could be easily assembled and were rigid enough in construction through the use of trusses to last for repeated pourings even with the handling to be expected from inexperienced labor.

To insure the proper placing of all steel reinforcing 4 inches from the front or sea-water side and 3 inches from the back of the wall, a series of concrete spacer blocks were designed that made the placing of the steel more exact than is customary in most concrete work. These blocks, 1 foot 1 inch long, and 3½ x 2½ inches at one end and 3 x 2½ inches at the other end, were cast in gang molds with a ½-inch notch 3½ inches from the larger end, and a step 4¾ inches from the smaller end to receive the steel rods for reinforcing the wall. In addition, to insure that the steel remained exactly at the point where it was designed to be, tie wires were cast into the spacer blocks at the points where the rods were to be. This block thus became absolute insurance for the placing of the steel. Further, since the blocks were placed against a back wall on a slope of 45 degrees, they acted as steps for the men placing the steel. A ¾-inch round paper tube was cast through the long dimension of the blocks, through which the tie rod of the Universal form clamps was passed in assembling the front and back forms. In general, the blocks served a half-dozen practical purposes.

THE COMPLETED SEA-WALL AT TAMPA



THE EXPERIMENTAL SECTION OF HAND-RAIL AND POSTS, WITH ONE PRECAST SPINDLE ON THE GROUND

The wall was constructed in sections within steel sheet piling cofferdams in the dry. The excavation required for the work was done by hand, and the reduction in costs is an evidence of the skill of the men in charge of the training of the relief workers, and the interest of the laborers themselves. The mucking costs for the first cofferdam were $2.50 per cubic yard, but this was cut to 60 cents per cubic yard in the last cofferdam. It was truly said by a local engineer that the experience and training afforded these workers made specialists out of raw men. Men were selected and trained to do certain work and maintained their interest throughout the work with a very small turnover.

As an example of this: A small crew was organized to cast the 10,000 spindles required for the hand rail. Thirty cast iron molds were ordered and these men went to work six months before the first spindles were required, so that they would have a stock on hand when the demand became insistent. They poured the forms in three levels with careful rodding to eliminate the shrinkage cracks on each round. The experimental spindles showed shrinkage cracks at each re-entrant angle, destroying their strength and leading to eventual accelerated weathering. It cost the engineers $200 to find the way out of this difficulty. The pouring in three layers was the final solution.

An attractive feature of the hand-rail is the location of bays at 500-foot intervals, with alternate bays leading by steps to the water, the others having seats cast along the hand-rail and no access to the water.

Backfill

The very character and design of this wall made the placing of the backfill a most important part of the work. The 45-degree backslope of the wall was designed to approximate the slope of the backfill material and thus gain its support without any pressure exerted against the wall as either thrust or uplift. Since pockets of quicksand or mud would exert these pressures, care was taken to exclude them from the section immediately against the wall and to fill this portion with clean sand.

The two miles of sea-wall included 2 miles of 10-foot sidewalk, 1 mile of 30-foot concrete paving, 3 miles of concrete curb, and 300,000 cubic yards of backfill. This backfill varied from 6 to 13 feet in depth, creating 10 acres of land in the first 5,000 feet of the project. The cost per foot of the sea-wall on the original project was $78, while the cost per foot over the entire 8,800 feet of the project was only $69, indicating the value of the organizing ability of those in charge.

This sea-wall project was initiated for the city of Tampa by R. H. Cason, City Engineer. Designs were prepared by Freeman H. Horton, who served throughout construction first as Designing and Supervising Engineer, and later as Consulting Engineer to the city of Tampa. Colonel G. A. Youngberg was engaged by the city as Consulting Engineer to review the designs and approve the construction plan. G. B. Philpott was Project Supervisor. W. E. Robinson, Chief Engineer for WPA, Tampa District, was responsible for the project from the time of its approval to its completion. T. R. K.—815.

Utility Rate Regulation Aided by Pacific Gas Case Decisions

IN January of this year, by its decision in the case of *Railroad Commission v. Pacific Gas & Electric Co.*,* 302 U. S. 388, the Supreme Court of the United States took a noteworthy step in the direction of simplification of public utility rate regulation. It overruled the Federal District Court's decision that the California Railroad Commission's order reducing gas rates in San Francisco was invalid because the Commission had given no weight to estimates of the hypothetical cost of reproducing the company's property. The matter was remanded to the lower court, however, for it to determine whether the reduced rates would actually be so low as to amount to confiscation of the company's property.

On September 8 the District Court rendered its new decision, which sustained the Commission's rate reduction order. The Court determined a value which checked substantially with the Commission's valuation after adjusting for depreciation. The Court's valuation was based partly on reproduction cost, but followed the actual or historical cost (which the Commission had used for its entire valuation) as to the only parts of the property where there was much difference between historical cost and reproduction cost.

The case had become somewhat academic, inasmuch as the company had already put into effect a rate reduction even larger than the one the Commission had ordered; and it is ironical that a lengthy and involved Court opinion is considered necessary to show that rates even higher than those adopted by the company were not confiscatory. But there is a refund of several millions of dollars involved, representing the difference between the old rates and the reduced rates which were enjoined against, for 1934-1936; and the company may appeal again, for the principle of the thing.

Although the Commission's relatively simple, just method of rate making was not fully approved, the reasonableness of the result was recognized, and another advance has been made in public utility regulation.

HAROLD M. OLMSTED.

* Reviewed in THE AMERICAN CITY, February, 1938, page 77.

How the Graded Tax Plan Works in Pittsburgh

Effect on Land and Building Valuations and Tax Rates for City Purposes, 1914-1938

By WALTER FAIRCHILD

THE city of Pittsburgh, Pa., in 1914 adopted the Graded Tax Plan for city taxes. Under the Graded Tax Law the rate was reduced on buildings and increased on land in five sections at two- or three-year intervals, reducing 10 per cent each time, so that after ten years, that is, after 1924, the tax rate upon buildings was one-half of the rate of land.

Two points are to be noted. The first is that the differential is in the *rate* of tax and not upon the *amount* of tax revenue realized. The second point is that the plan applies to the city tax only and not to school and county taxes.

The total millage (tax rate) for 1938 is as follows:

	Land	Building
City	20.6 mills	10.3 mills
School	11.25 "	11.25 "
County	8.00 "	8.00 "
	39.85	29.55

Taking all of the taxes together, the building rate is about 74 per cent of the land rate.

Increased Building Construction

The reduction of the tax on buildings tends to encourage new construction. On this point Percy R. Williams, Chief Assessor of the city of Pittsburgh, writes as follows under date of May 2, 1938:

". . . . We believe that the lower rate on buildings has had a considerable influence in encouraging the erection of new buildings since 1914. The answer to your question in a general way is that the increase in building values has been due almost entirely to the volume of new building construction during this period. There has never been any arbitrary increase in building values on the part of the Board of Assessors but, as you know, there have been very material fluctuations in building construction costs and in market values due to periods of scarcity when demand tended to overtake supply of buildings. At times some upward revisions were made in the valuations of older buildings, but such upward revisions have been much more than offset by recent downward revisions in valuations which have made due allowance for depreciation and obsolescence. . . ."

In the year 1914 the total building-value assessment was $281,871,100; in 1938 it rose to $546,169,870, an increase of 93.77 per cent.

The land-value assessment in 1914 was $481,057,710, and rose to $552,691,800 in 1938, an increase of 14.89 per cent.

In other words, the building assessments of Pittsburgh almost doubled in 25 years, whereas the land assessments increased only 14.89 per cent. The accompanying table shows the assessments on land and buildings and the tax rates and revenues for city purposes, and population and per capita land values of Pittsburgh for each year from 1914 to 1938 inclusive.

An increase in the amount of taxes levied on land value tends to depress the selling price of land. The opposite influence is the tendency of land values to rise as population increases. There is also a general tendency of land value to increase faster than population because of advance in invention and the productive arts. The increase in land value is further augmented by the improvement in municipal services.

ASSESSMENTS, CITY TAX RATES AND REVENUES, AND PER CAPITA LAND VALUES, PITTSBURGH, PA., 1914-1938

Year	Land			Buildings			Population*	Land Value Per Capita
	Assessment	Tax Rate	Expected Revenue	Assessment	Tax Rate	Expected Revenue		
1914	$481,057,710	.0094	$4,521,942	$281,871,100	.00846	$2,384,630	557,647	$863
1915	480,191,010	.0102	4,897,948	290,833,300	.00918	2,669,850	563,028	853
1916	483,382,070	.0126	6,090,614	299,202,850	.01008	3,015,965	568,409	850
1917	482,149,040	.0115	5,545,231	310,793,800	.0092	2,859,303	573,790	840
1918	482,132,590	.0145	6,980,923	320,438,820	.0116	3,717,090	579,171	832
1919	480,131,130	.0157	7,538,059	325,889,000	.01099	3,581,520	584,552	821
1920	479,850,740	.0190	9,117,164	334,656,810	.0133	4,450,936	590,707	812
1921	480,434,540	.0200	9,608,691	349,311,750	.014	4,890,365	601,370	799
1922	487,939,620	.0200	9,758,792	380,238,310	.012	4,562,860	606,099	805
1923	532,688,420	.0200	10,653,768	396,176,380	.012	4,754,117	617,503	863
1924	530,730,600	.0200	10,614,612	420,501,430	.012	5,046,017	622,332	853
1925	548,475,280	.0195	10,695,268	442,004,840	.00975	4,309,547	627,061	875
1926	548,219,170	.0224	12,280,109	465,897,650	.0112	5,218,054	631,790	868
1927	554,616,950	.0224	12,423,420	505,396,600	.0112	5,660,442	654,702	847
1928	574,238,300	.0250	14,355,938	535,849,140	.0125	6,698,114	661,541	868
1929	575,038,670	.0250	14,375,967	563,104,930	.0125	7,038,812	666,270	863
1930	576,882,690	.0260	14,998,950	587,781,070	.013	7,641,154	671,000	860
1931	588,387,850	.0255	15,003,661	614,042,360	.01275	7,829,040	673,700	873
1932	586,692,810	.0230	13,493,935	621,573,310	.0115	7,148,093	675,900	868
1933	586,380,100	.0206	12,079,430	625,257,730	.0103	6,440,155	678,500	864
1934	566,584,170	.0206	11,671,634	614,224,490	.0103	6,326,512	681,100	832
1935	562,169,420	.0206	11,580,690	609,719,210	.0103	6,280,108	683,700	822
1936	562,169,420	.0206	11,580,690	608,718,930	.0103	6,269,805	686,300	819
1937	556,552,050	.0206	11,464,972	543,891,880	.0103	5,602,086	688,900	808
1938	552,691,800	.0206	11,385,451	546,169,870	.0103	5,625,550	691,500	799

* Estimated for non-census years.

Savings to Improvers of Land

Where the holder of land improves to an amount equal to or greater than the value of the site, the graded tax will operate in his favor.

Where a site is unimproved or the improvement is worth less than the site, the graded tax will appear to be disadvantageous to the holder of the site. On the other hand, the graded tax will favor the holder of an unimproved site when he improves it to a point where the building is worth more than the site. The graded tax will tend to discourage speculation in vacant or poorly improved sites, but will encourage the adequate use of the site by the holder.

Let us assume that the average home in Pittsburgh is worth $5,000; land $1,000, building $4,000. The following indicates the savings to the owner of such a home in Pittsburgh under the present Graded Tax Plan, which applies to city taxes only. Figures are also given showing the saving that would result if the graded tax were applied to the school and county taxes. It must be remembered that these figures are based on the Pittsburgh graded tax rates, where the differential is fixed for buildings at one-half the rate fixed for land values. The following calculations are by John C. Rose, of Pittsburgh, May 26, 1938.

The Graded Tax Plan Applied to Homes

THE GRADED TAX PLAN

Land	.0206
Building	.0103
Equivalent flat rate	.0155 (.01548)

The following table shows the tax rates and savings on a $5,000 home (land: $1,000; building: $4,000):

Old flat rate (.0155)		$77.50 amount of tax
Graded tax (.0206)	$20.60	
(.0103)	$41.20	$61.80 " " "
		$15.70 saving

If the present graded tax were to apply to the school and county taxes also, the additional savings to the $5,000 home owner on the basis of present assessed values would be approximately:

A GRADED SCHOOL TAX

		On a $5,000 Home
Present flat rate	.01125	$56.25 amount of tax
Proposed graded tax:		
Land	.015	
Building	.0075	$45.00 " " "
		$11.25 saving

A GRADED COUNTY TAX

		On a $5,000 Home
Present flat rate	.008	$40.00 amount of tax
Proposed graded tax:		
Land	.0106	
Building	.0053	$31.80 " " "
		$ 8.20 saving

A 4-to-1, a 5-to-1, or a 10-to-1, graded tax for the city, the school and the county would, of course, effect a progressively larger saving than the 2-to-1 plan.

In all these cases, the actual and the theoretical graded tax rates will yield the same total revenue as the flat rates, but the incidence of the graded tax is much different. Under the Graded Tax System the owner who improves his land—thus helping to make his community a better place in which to live—is not penalized, but rather is rewarded and encouraged to build better homes. The flat rate, on the contrary, penalizes home owners.

Valuing a Public Utility for Taxation

THE difficulties, uncertainties and contradictions involved in assessing utility property for tax purposes are strikingly illustrated by the six-year-old litigation over the assessments of the Stamford Gas & Electric Co. (now a division of the Connecticut Power Co.). This reached a new stage on September 6, when the decision of Judge John A. Cornell regarding the assessments for the years 1931 and 1932 was filed in the Superior Court.

According to the *Stamford Advocate* for September 7, the local assessors had valued the property at $5,676,980 for 1931 and $4,752,380 for 1932. The Board of Relief increased the assessments to $6,684,980 and $6,624,160, respectively. Judge Cornell approved the local assessors' figure for 1931; while for 1932 his figure was $5,027,320—somewhat higher than the assessors' but much below the Board's. He approved the principle of fair market value where it could be applied, as in the case of certain movable property; but reproduction cost less depreciation was evidently favored for fixed equipment, which was classified with land and buildings, and for underground cables—excepting, however, for the cost of placing them underground.

The company has announced that the saving caused by the reduction in assessments will be passed on to the customers—a most commendable move. It is to be wondered whether it would likewise accept the tax valuation as a rate base.

HAROLD M. OLMSTED.

Zoning at Its Best and Worst

"ZONING is one of the most important tools that a modern community can use in shaping its future. At its best, zoning is a guide toward orderly development, based on a plan for rational use of land, and resulting in the greatest benefit to landowners and to the community as a whole. At its worst, zoning is a legal blueprint of the fantastic hopes of speculators, opening the door to congestion, disorder, over-subdivision, deflated land prices and municipal bankruptcy.

"Zoning, in the Cleveland Region, has been more often at its worst than at its best. The history of zoning here begins in 1920, with the passage of the first zoning ordinance. Nearly 20 years of experience have made clear the weaknesses of the early experiments, but too often recent zoning has simply repeated the mistakes made before. It is time to take stock, to analyze and correct these mistakes. The Regional Association of Cleveland has undertaken a study of existing zoning in Cuyahoga County, to determine its faults and what might be done to improve it."

—From the Introduction to a mimeographed report on "Regulation of Residential Buildings," issued August, 1938, by the Regional Association of Cleveland, Ohio.

Unique Truck Transport for New Police Rescue Launch

By DANIEL CASEY
Director of Public Safety, Jersey City, N. J.

THE collapsible boats which have been carried as part of the equipment of Jersey City's emergency fire trucks have not been satisfactory to the city administration, for these frail craft are affected by every vagary of wind and tide. It was agreed that it would be desirable to have a staunch boat, not too heavy or unwieldy, always available for any waterfront emergency, and it was suggested that such a boat be placed on a special truck equipped with complete marine life-saving and first-aid apparatus and kept at a point most convenient to all the bodies of water bounding Jersey City.

BOAT CAN ENTER WATER BY STEEL SKIDS PULLED FROM TRUCK

The Truck Is Built

The truck, when completed by Deputy Fire Chief Myles Burke, surpassed expectations as to appearance and utility. It carries a 16-foot motor launch and is believed to be the only truck of its kind. It is 24-5/6 feet long and 7-1/3 feet wide, with a wheelbase 15½ feet. Its length is carried gracefully, even rakishly, and the truck can be handled easily on difficult terrain. This is essential, because one call may find the truck backed to the stringpiece of a pier, and the next one take it to a sandy or muddy sloping beach. In either case, the boat can be launched in less than a minute.

Equipment

The truck is streamlined, with two spacious compartments on either side containing life-preserver vests, life-belts, a rope ladder, grappling hooks, including a ball hook which permits grappling between piers and pilings, H-H inhalators, blankets, heat-packs, thermos bottles, hawsers and bilge pumps. There are also steel chains, some small enough to hoist a body from the water, and others large enough to raise automobiles. Two long boat-hooks parallel the body of the truck.

Chromium steel davits set into niches on each side of the vehicle may be snapped into position to lower away.

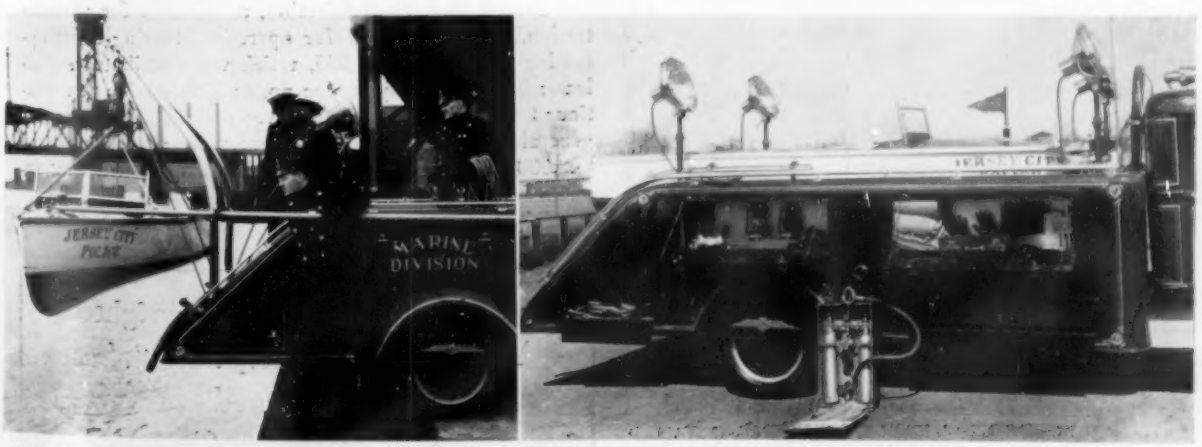
At each corner of the truck is a 500-watt floodlight. These four lights are portable, having special tripods and 400 feet of cable. A 5,000-watt generator run by the regular motor of the vehicle furnishes power for the lights and for power drills.

Two-Way Radio

As with all our police vehicles, the marine emergency truck carries a two-way radio outfit, so that direct contact may be kept with headquarters. This feature is especially valuable because many of the points to which the truck will be sent are not accessible by telephone.

The Boat

The 16-footer, driven by a 2-cylinder, 7½-hp outboard motor, is sleek and shining, with a green-and-white hull and a lustrous mahogany deck. The wheel, metal fittings



LEFT—PORTABLE DAVITS LOWER BOAT DIRECTLY INTO WATER. RIGHT—BESIDES THE INHALATOR SHOWN HERE, THE TRUCK CARRIES A COMPLETE LINE OF RESCUE EQUIPMENT

and lettering are of chromium finish. There are oars, should the motor fail; life-preservers, fenders, a fog-horn, and a life-gun shooting 200 feet of line.

Connecting the cushioned front and rear seats is a cushioned platform upon which a victim of submersion may be given first aid while the launch is being driven to a landing. The cushions may be used as life-preservers, for by slipping the straps attached to these cushions over his shoulders, a person could remain afloat indefinitely.

While in the truck, the boat is carried on a cradle equipped with oversized pneumatic tires. If it is desired to launch the craft from the dock, the portable davits are affixed and it is lowered gently into the water. On a safe beach, the truck may be driven to the water's edge, steel skids pulled from the vehicle, and the cradle rolled down the metal track. If the nature of the land does not permit such close approach, the boat may be taken from the truck in the same manner and easily pulled on the wheeled cradle to a point where it may be slid into the water.

The Profitable Diesel Plant of Greenville

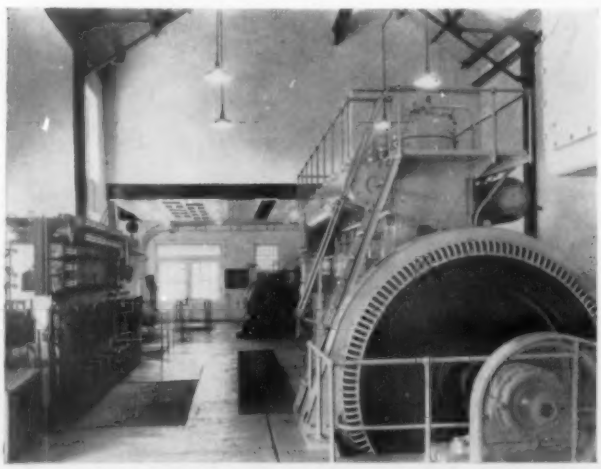
By M. F. RUNNION
Cashier, Municipal Utilities Department, Greenville, Texas

"THE greatest asset of the city of Greenville today is its municipal plants," says the local *Morning Herald*. In five years they have paid for two diesel engines in addition to donating $100,000 per year to the general fund of the city. The 1,300 street lamps, the parks, the schools and other public buildings are lighted without charge; bonded debt has been reduced from $2,000,000 to $1,250,000; the bonds of Greenville, Texas, sell at a premium; and electrical output has increased from 5,281,000 kwh in 1933-34 to 7,250,000 kwh in 1937-38, requiring the installation in May, 1938, of a new diesel-electric unit.

For 45 years the city was served by a steam station which in 1933 became merely the standby for a new modern diesel plant equipped with two Nordberg engines, one a 4-cylinder 1,000-hp, and the other a 6-cylinder 1,500-hp. A 37 per cent increase in load required the installation of a third generating unit in May, 1938. This new Nordberg engine is of 2,000 hp, or 1,430 kw, of the trunk-piston, 2-cycle, mechanical injection type, with eight cylinders of 17-inch bore and 25-inch stroke.

For the fiscal year ending April 9, 1938, the net output was 96 per cent of the gross output, and 85 per cent of the net production was sold at an average of 3.7 cents per kwh, a grand-total cost of 0.81-cent per kwh, and rates are lowest in the state. The units produced 11.5 gross kwh per gallon of fuel oil and 1,893 kwh per gallon of lubricating oil.

Sales for the fiscal year ending April 9, 1938, comprised $126,385 for light, $70,264 for power, and $7,363 miscellaneous, totaling $204,012. Costs were $46,986 for generation, $23,015 for distribution, and $9,056 for administration, totaling $79,057 for operation, leaving a net operating income of $124,955, which was distributed as follows: $21,597 to pay engine notes; $26,400 for depreciation; $8,742 for operating reserve; and $68,216 to the city general fund. The Water Department also transferred $29,000 to this fund, and the Sewer Department contributed $5,043. Thus the city of Greenville profited from its municipal utilities to the amount of $102,260.



SIX-CYLINDER 1,500-HP DIESEL ENGINE, GREENVILLE, INSTALLED IN 1933
Showing also steam-turbine standby plant

Utilities Pay 40 Per Cent of All Municipal Costs in Greenville

The total budget requirement, exclusive of schools, if raised by taxation would be $2.76 per $100 valuation. However, the actual tax rate collected is only $1.60 per $100 valuation for the reason that the utility plant's earnings pay the difference of $1.16, the Electric Department paying 67 per cent of this amount, and the Water and Sewer Departments paying 33 per cent. Recently a 6-cent additional tax assessment was voted by the citizens, authorizing an issue of $97,000 in bonds in order to take advantage of a Federal grant for the construction of a city hall and municipal building. These taxes, too, will be levied but not collected, for payment is assured by earnings from the municipal utilities.

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THE AMERICAN CITY

What's New for Cities in Business Machines

"THAT new calculator will do everything except paint your walls," was a remark made by one of the thousands at the 35th National Business Show, held in New York, October 3 to 8. The remark epitomizes modern business machines, which every year become more automatic and at the same time simpler to operate.

One of the interesting new machines is the Elliott Tax Bill Printer, and the machine shown at the Business Show was not only No. 1 off the line but was already the property of Jefferson County, Ala., where it will print the tax bills for the county and the municipalities of Birmingham, Bessemer, Fairfield, Homewood, Irondale, Leeds, Tarrant and Warrior. Starting with a blank roll of paper, the bill is first numbered and a hole punched; then it is addressed with name and description of property, first the duplicate and then the original; then each is spot-carboned on the back, and the two are crimped together and scored, all at the rate of 35 per minute. The Elliott Addressing Machine Co., of Cambridge, Mass., also makes a Public Service Bill Printer for bills with stub, and one of these was recently installed in the Minneapolis Water Department to do the work described on page 103 of the April issue of THE AMERICAN CITY. For municipalities desiring to classify their tax and utility bill payers and address them by occupations, sex, old-electric-appliance owners, or by any other classification, the Statistograph merits study. The West Penn Power Co., whose remarkable street-lighting installations at Greensburg, Pa., will be featured in the December issue of this magazine, uses this machine for customer analysis and advertising.

"Addressing machine" has really become a misnomer, because the machine now prints so many data besides the address. The Addressograph Multigraph Corporation, of Cleveland, shows its famous No. 2725 equipped with a two-column lister which spreads the data across the full line of the tax-roll or payroll sheet. On tax work it prints the standard information not involving calculation, such as name, address, description of property, number of account, valuation. On payroll work requiring only standard deductions and no variables, it prints the payroll sheet, the time-clock card, the employee's statement, the earnings and the salary checks, at the rate of 2,000 documents per hour. There is also a hand-operated machine which performs the same work for small municipalities. For the large municipalities there is also the No. 3400 automatic check writer, which prints 8,000 pay checks per hour, giving salary amount, name and address, date, check number and signature. There is also a bill-printing machine which turns a blank roll of paper into stub bills containing all the fixed data. Letters to delinquents or to any other class of citizens can be printed with name and salutation, date and letter, in one operation at the rate of 800 per hour by the No. 5300 Dupligraph. Tabs on the Addressograph typing units permit ready selection or omission of any names.

No mention of tax or payroll work is complete without presenting the general accounting machine of the Burroughs Adding Machine Co., of Detroit, with the multiplying feature, first brought out in 1911 and systematically improved since then. It adds, subtracts and multiplies, is equipped with three to ten registers, and not only turns out the bills but at the same time prints the tax-roll sheet and the individual ledger cards.

On payroll work this machine also performs three operations in one. It writes the check on the cash envelope, the employee's statement and the payroll register sheet. The register is placed in the carriage, the employee's statement is inserted and the check is placed under it, and production proceeds. The machine is also used in water and electric billing and in budgetary accounting, as explained on page 137 of the May issue of THE AMERICAN CITY.

Burroughs also features two desk models—a bookkeeping machine suitable for ledger-posting as well as for adding and subtracting, and a rapid calculator which adds, subtracts, multiplies and divides.

The Burroughs Fanfold order-writing machine is only two years old. Equipped with electric-controlled carriage and standard keyboard, the finished purchase order is removed from the machine, and the carbons shifted from the completed forms to the next set, in three operations, as follows:

1. At the touch of an automatic key, the entire carriage opens automatically and the forms and carbons retract to the rear of the machine and latch.
2. Operator pulls order forward to a definite limit and tears off the order.
3. Machine aligns to next line of writing.

Thus the operator's hand leaves the keyboard only to tear off the orders. High production, neatness, accuracy and ease of operation are the features.

The Underwood Elliott Fisher Co., of New York, also makes a fanfold billing machine, used for instance by the Purchasing Department of Minneapolis, where 150 to 200 orders in sextuplicate are turned out per day. Each copy is of different color to facilitate distribution. The application of this company's Sundstrand Model D machine to tax accounting is described on page 637 of The Municipal Index, 1938 edition.

The above publication also describes the operation of the tabulating machines of the International Business Machines Corporation as they apply to water billing. These electrical bookkeeping and accounting machines are also used on tax work (THE AMERICAN CITY, page 58, September, 1937), on payroll work (page 43, January, 1938), and on cost accounting (page 56, September, 1938).

The Monroe Calculating Machine Co., of Orange, N. J., has just made available a new calculator operating on the short-cut method, which has the effect of doubling the speed or—what is more important—of cutting the operating time in half, with less wear on both the machine and the operator. In multiplying, say, 345 by 89, the operator merely pushes the 8 and 9 keys and depresses the set-up key; then sets up the 3 and 4 and 5, and depresses the

FOR THE

*Must Jobs**

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multiplying key. The machine then multiplies 89 x 345 automatically, and at the same time automatically shortcuts the multiplier 89, making this calculation in only three revolutions, and then returns the carriage to the first position. It is the A-1 Model. Another new Monroe listing machine model adds groups of figures, keeps the group totals separate, and also furnishes the grand total; this machine has the utility of adding and subtracting in both registers. Credit balances from either register are entirely automatic.

Municipal Utility Billing

During the last three years the utility billing machine of the National Cash Register Co., of Dayton, Ohio, has been installed by a number of municipalities. The Water Departments of Salem, Ore., Dayton, Reading, Pa., Kansas City, Mo., and Baltimore, use them, as do a number of municipal electric utilities, including Kansas City, Kans. (installed in January, 1938). It has no carriage, no carbons, and prints simultaneously from three records, at the rate of 200 bills per hour plus ledger sheets and a proof sheet. Printing on the ledger sheet is horizontal and on the bill vertical, and the journal sheet summarizes as many as 30 totals, by consumption, revenue and other classifications. The municipal utilities of Jonesboro, Ark., population 11,000, bill with this machine, as does the Imperial Irrigation District, Imperial, Calif., with 5,000 accounts.

A machine of considerable interest to municipalities is Model 85, of Remington Rand, Inc., of Buffalo, whose successful use on municipal-electric accounting and billing is described in the recent series of articles on the subject published in THE AMERICAN CITY.

Duplicating

In the field of duplicating there is the well-known Multigraph, the more recent Multilith and the new Multigraph Duplicator of the Addressograph Multigraph Corporation. The first prints the letter or other announcement directly from plate to paper. The second and third machines operate on the "offset" principle, by which the ink of the image is transferred, in the machine revolution, to a rubber blanket and the paper "picks up" the ink deposit from the blanket. The "plate" used on the Multilith and the Multigraph Duplicator when up to 2,500 copies are desired is the Duplimat, of paper; and when up to 10,000 copies are wanted, the Duplex plate, of zinc, usable on both sides. Sketches, typing, drawings and any colors may be duplicated at the rate of 4,000 to 5,000 per hour.

For quantities up to 300 copies, Ditto, Inc., of Chicago, makes a number of machines selling for from $18.75 to $750, operating on the gelatin principle for 100 copies, and by direct copying from the original for up to 300 copies. They are used by municipalities for issuing bid lists and purchase orders, for financial and operating statements, and for police bulletins, and can copy forms up to 14 x 28 inches.

Personal Modernizing

Efficiency begins in the municipal official's own office, for which there are two noteworthy appliances—the interoffice telephone system, and the dictating machine. Dictograph Products Co., Inc., of New York, presents a preview of its brand-new Dicto-Matic system, which is a combination of the Standard Dictograph key operation given the flexibility of the automatic exchange. Dicto-Matic is an addition to this company's regular line which permits a municipal official to discuss matters two-way with any number of his colleagues simultaneously, or to dial any member of the city forces possessing an interoffice telephone instrument. The results are instant action, less interoffice visiting, and lower switchboard overhead.

Both Thomas A. Edison, Inc., of West Orange, N. J., and the Dictaphone Sales Corporation, of New York, have deck-model dictating machines. The year-old Model 12 Dictaphone is suitable for either desk or cabinet. The compact brand-new Ediphone is only as long and wide as a letter, and as low as a French telephone. Neat appearance makes it an asset to the desk, while two wheels in the back give mobility without affecting stability. An attachable speaking tube and a pair of keys to indicate (1) length of letter and (2) correction add to the convenience of operation.

A 35-minute talkie produced by the Dictaphone Sales Corporation shows most entertainingly the time- and memory-saving features of the dictating machine. Not only is the time of the official economized, but so are the time and energy of his secretary, who, instead of having to fill her notebook with shorthand, receives from time to time a magic notebook in the shape of a dictated record. This record can be transcribed by herself or by a typist, permitting her to do considerably more secretarial work. In addition to letters, the official employs his machine for recording important telephone conversations and can give it all manner of instructions and reminders in the absence of his secretary.

During the last three years a fundamental change has come over municipal governments with respect to the use of office appliances, and already the unmechanized tax and utility department is regarded by many as evidence of an unprogressive city.

Washington Gets Broad Powers to Prevent Land-Overcrowding

UNDER a 1938 Act of Congress the District of Columbia is given much more effective control than heretofore of the regulation of the location, height, bulk, and uses of buildings and other structures and of the uses of land in the District. Of especial interest is Section 2 of the Act, which reads as follows:

"Such regulations shall be made in accordance with a comprehensive plan and designed to lessen congestion in the street, to secure safety from fire, panic, and other dangers, to promote health and the general welfare, to provide adequate light and air, to prevent the undue concentration of population and the overcrowding of land, and to promote such distribution of population and of the uses of land as would tend to create conditions favorable to health, safety, transportation, prosperity, protection of property, civic activity, and recreational, educational, and cultural opportunities, and as would tend to further economy and efficiency in the supply of public services. Such regulations shall be made with reasonable consideration, among other things, of the character of the respective districts and their suitability for the uses provided in the regulations, and with a view to encouraging stability of districts and of land values therein."

A land-coverage and use survey is about to be made as a basis for the new zoning rules and regulations which are to be set up by the Zoning Commission under the powers granted in the enabling act.

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Burroughs has made an intensive study of municipal accounting, and has developed many new machines and features affording a wider range from which to select the method best suited to the requirements of all municipal departments. The Burroughs representative is fully qualified to discuss these new developments with you, and to show how other municipalities are using them to advantage. For complete information, call the nearest Burroughs office, or fill in and mail the coupon below.

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Would a Hundred Lepers Be Welcomed Into Your Town?

By DAVID CUSHMAN COYLE

IT took the dust storms to call the public attention to soil erosion, and it takes the spectacular collapse of the taboo that protected syphilis to give public health the necessary headlines that will bring further progress all along the line.

Syphilis is an ideal public enemy because it is both unpopular and capable of being defeated. Syphilis is Captain of the Army of Death. It is probably the chief cause of death in the United States; but, like a gangster chief, it lurks in the background and kills by deputy—heart disease, influenza, anything that comes handy. There were 104,000 people permanently disabled by automobile accidents in this country in 1934, but syphilis got more than 500,000. Infantile paralysis is bad enough, but syphilis gets a hundred times as many victims. About one person in ten has syphilis at some time in his life; and because of the taboo against talking about it, many in the past have not been cured.

In Sweden, a real campaign against this disease has been carried on since before the World War. The number of cases in 1938 was reported as one-fiftieth of the number known to exist in upstate New York, which has about the same population as Sweden. Why should we not save forty-nine out of fifty Americans who are now subject to this plague?

The question whether you are your brother's keeper has a gruesome answer in the prevalence of this disease among the poor and neglected. Can you shut yourself in with your clean friends like the lords and ladies in Poe's story of the Mask of the Red Death? Do you never deal with porters or news vendors or with barbers and waiters in a town with an understaffed health department? Have you never touched a handrail in a crowded subway entrance? The poor you have always with you; if you want them clean you had better give them a chance to be clean. How would you like it if a hundred lepers came into your town? Syphilis is more infectious than leprosy and no more fun to have.

There was a Federal appropriation of two million dollars in 1918 to fight this disease. That was a time when we had some idea of protecting our people, because we were in a war. But with the return of peace the Government fell back into habits of economy and nothing noticeable was done until the depression. Prosperity, combined with forgetfulness of the pestilence that walketh in darkness, is not a sound national condition. Now that the forbidden subject has broken into the newspapers in peacetime, a great stride forward has been made. Other nations have had notable success in killing this great enemy. We shall do the same if we can stand the cost. How much cost? Fifty million dollars a year, or 39 cents apiece.

Our national neglect of public health is shown by the fact that the progress made in certain places has not been extended throughout the country. The success of modern medical science has been spectacular, and yet millions of Americans are almost completely cut off from its benefits.

The average lifetime of Americans has been lengthened 17 years since 1890. New Zealanders, however, with a more progressive government than most countries, live six years longer than Americans. What would you give for six years of life? New Zealand has high income taxes. "Nothing is certain but death and taxes." Could it be death or taxes?

Death Retreats Before Increased Taxes

Our taxes have greatly increased in this country in fifty years and death has retreated at the same time. In 1885 fifteen deaths out of sixteen were from contagious disease. Today only eight out of sixteen are from contagious disease, and that record could be cut by spending a little money. In 1900, more than 200 people in each 100,000 died each year of tuberculosis; in 1934 the national average was down to 57. Yet, in 1937 there was a census district in the city of Washington, within a mile of the Capitol, where the death-rate was more than 400 per 100,000. Typhoid has been reduced 90 per cent, since 1900. Massachusetts reported in 1890 that out of every thousand babies born, 158 died in the first year; in 1931 only 29 died. Half the babies who die in this country now could be saved if the best American practice were applied over the whole country. In Williamson County, Tennessee, after modern public health methods were introduced, the deaths of mothers in childbirth were cut from 7.4 to 2.2 per thousand births.

The Federal authorities estimate that if the death-rate of all Americans could be brought down to the average death-rate of white people in the best-protected areas, we should save 400,000 lives per year. Everyone has to die sometime, but most of us would like to put it off until a later date. If a foreign enemy were bombing 400,000 of our citizens each year, we should hasten to appropriate money for the Navy. But in spite of the excellent results that have followed the establishment of public health service in 1,000 counties, there were in 1938 more than 2,000 counties with no full-time public health officer.

Along the Ohio River, in times of low water, one quart in every gallon has come out of a sewer. After being filtered, this appetizing compound is used for drinking by 2,500,000 people.[1] There are other rivers as bad, the Red River of the North, for example. Purification plants will remove the disease germs from almost any liquid, if there are no accidents. But there have been some bad epidemics of mass poisoning from drinking filtered polluted river water. The results are far less poisonous if the sewage is purified of germs and solid materials before being dis-

[1] Water Resources Report, National Resources Committee, 1937.

BURLINGTON, IOWA LEVELS ATHLETIC FIELD WITH WK TRACTOR AND CONTINENTAL 4-YARD SCRAPER

Building an athletic field in the City of Burlington's new Dankwardt Memorial Park required the movement of 30,000 cubic yards of dirt. To complete the job at a low cost to the taxpayers, the city's own WK tractor and Continental 4-yd. scraper, shown here, are handling all the excavating, hauling and filling work. Burlington officials know this outfit to be fast-moving and economical because they have used it for months on street building and other city improvement work . . . have watched it get heaping loads quickly, carry those loads at speeds up to 5.92 m.p.h. (521 feet per minute), and end dump on the run or place dirt between forms and around structures that most scrapers cannot reach.

Like Burlington, your city can save the taxpayers' money by using this fast-moving, all-around combination on city earthmoving work—building streets, leveling playgrounds and airports, landscaping parks, excavating for filtration plants, etc.

Ask your Allis-Chalmers dealer about the new reduced prices on both A-C tractors and Continental scrapers.

Big Loads Quickly—Burlington's WK tractor and Continental 4-yd. scraper picks up capacity loads in a hurry despite the hardpacked soil. Continental scrapers have exceptional digging ability, get big loads even in wet, sticky clay or shale.

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charged into the stream. Sewage purification is often resisted because of the expense, although the experience of many cities shows that the salvage of fertilizer materials will cover a considerable fraction of the cost.

Money Values in Keeping People Well

There is excellent work being done by certain corporations in preventing accident and disease among their employees. Their experience shows that most industrial concerns can spend on health and safety as much as $12 per year per employee and get their money back in reduced costs. But though safety work can be made profitable, few plants have even a part-time safety director.

Although it is no longer customary to consider people as property, human beings have a money value to their families, and sometimes to their employers and associates. Of course, the total money value of the population has no meaning, since if we were not here there would be no one to appreciate our useful qualities. But since it costs over $2,000[2] to raise a boy or a girl to eighteen years old, even on a farm, it is certainly cheaper to raise a boy and have him live than to raise two and have only one of them live. There is therefore a money value in keeping people alive. There is also a clear money value in avoiding sickness—a sick person is an expense to his family or to the community. . . .

The human race has always struggled along under the handicap of sickness and accident; but in earlier times nearly everyone was young, for nearly everyone died of one contagious disease or another before the age of forty. Now that we live longer, and have the medical science at hand, it pays to take better care of our health. According to the U. S. Public Health Service, the American people lose about ten billion dollars a year by accident and sickness, out of which we could save two or three billion dollars by investing a few hundred millions. In public health alone, the experience of the civilized parts of our country shows that an expenditure of $2 per capita will save more than $2 per capita. Well people can pay taxes for public health more easily than sick people can pay hospital bills. That is, we could spend a quarter of a billion a year on public health and get it back in reduction of the money cost of sickness. Our total expenditures, Federal, state and local, are less than half that. The legislators want to know where they can get the money. In truth, the money would come out of the profits of not being sick or injured; but of course the hard-working legislators would have to get it by higher taxes. The people must suffer until they are willing to re-elect men who dare to collect higher taxes for profitable uses.

[2] O. E. Baker: "The Outlook for Rural Youth"; Department of Agriculture, Extension Service Circular 223, 1935.

Political Management and Public Distrust

One of the chief obstacles to profitable investment of this kind is of course the public distrust of political management. Even though many of the services are honest and efficient, and though the saving is often so large as to outweigh the actual costs of errors and dishonesty, a few stories of graft or dirty politics may hold back progress for some time.

The industrial plants that do not spend $12 a year in protecting their employees "can't afford it." But money that pays itself back by lower production costs is no burden on the industry. The real reason for much of this unnecessary waste is lack of information. Spreading the information is to a large extent the government's duty. Employers' liability laws also tend to attract the attention of industrial managers to the advantages of accident prevention.

When the depression struck, there were cities that tried to balance their budgets by cutting the appropriations of their health departments. Anyone who knows anything about running a business knows that a department dealing with as treacherous a problem as disease can be so weakened by a 30 per cent cut as to be practically useless. It is no saving to the taxpayers to make them pay unnecessary hospital bills and funeral expenses. Here again, the cause of this wasteful economy is lack of information.

Public health is an investment that has already been tried in so many places that its profits are proved. Only ignorance allows the money that might still be profitably invested in public health to lie idle while people die who might have lived.

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Today's Big Opportunity for the American People

A CHALLENGE to governmental officials and the construction industry "to transform this land into a completely civilized country" was voiced by Thomas S. Holden, President of the New York Building Congress, at the Construction Industry Conference held by the Chamber of Commerce of the United States in Washington, October 20-21. The following is quoted from his address:

"The need for community improvements is perhaps greater than ever before," said Mr. Holden. "Urban communities must make extensive improvements to counteract blight. Traffic conditions in our city streets and principal highways demand a continuing program that will be pushed ahead as rapidly as the state of public finances will permit. During recent years, the demand for open spaces and public recreation facilities has created an enormous volume of construction. . . .

"If maintenance and replacements of our physical assets are not kept up continuously, our wealth deteriorates. If we cease to produce new fixed wealth, our national economy is static, the living standards of families and of communities cease to advance. Revival of the construction industry to a volume of operations comparable to that which has prevailed in the past is a great deal more important than mere pump-priming to help general business, or temporary relief of unemployment. The industry's claim for consideration by government, finance and the general public is not based on an appeal for sympathy and help; it is based upon its desire to perform its vital function in a renewed program of economic expansion. Our interest as citizens of a potentially greater and more prosperous United States, with a bigger national balance sheet than the one of 1930, is identical with our interest as business and professional men anxious for a wider market for our goods and services."

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Relief Problem as a Former City Manager Sees It

THE serious situation in Texas counties which has resulted from drastic constitutional tax limitations and lack of a State Department of Public Welfare was stressed by Adam R. Johnson, Director of the Texas Relief Commission, in an address on October 7, before a meeting of County Judges and Commissioners of Texas. Mr. Johnson, who has served the state of Texas in his present capacity since 1934, is well known in the municipal field as having been City Manager of Austin from 1926 to 1933.

After sketching the history of public relief in Texas since 1932, Mr. Johnson's address offered the following comments and recommendations:

"I hope to live to see the day when there will be at least as much effort and consideration given towards the benefit of the human family as there has been in trying to breed and grow better livestock. It is my honest conviction that if we would become as earnestly concerned in the physical and mental development of our people as we have in the betterment of the animal family, many of our troubles would be averted and we should soon experience decided economic benefits.

"A government like ours can be no better or stronger than its people, and as the children of today are the men and women of tomorrow, we should be much concerned in trying to make it possible for them to be strong and healthy in every way, for economic and political reasons if for none other.

"Under the present relief set-up in Texas, the financial responsibility of caring for the needy people of the state rests entirely with the various counties. The constitutional tax limitation of 25 cents on the $100 valuation for general purposes is insufficient in most instances to care for normal governmental functions of the county, making it financially impossible for the counties to extend adequate relief, resulting in considerable distress from lack of proper housing, nourishment and medical care.

"I think there is a great need for a constitutional amendment authorizing the counties by vote of its people to levy a limited tax to care for such an emergency as now exists. An amendment of this character was proposed at the last regular session of the Legislature, but for some cause it died in the committee room.

"Finally, in our judgment, the relief situation today presents a serious social problem that is not being solved through the methods thus far employed. Industry will never absorb a great portion of the group that represents our present relief load. Therefore, if we are correct in the premises, Texas needs a competent, well-grounded Department of Public Welfare responsible for the administration of all public welfare activities. All functions of such a department should be cleared through one central intake and administered by one directing head, thus preventing many duplications of effort. By unifying all welfare activities through such a department, thereby concentrating effort and thought on public welfare needs, a more economic plan of caring for our needy people might be worked out. Certainly such an arrangement would give more efficient service, and we do not believe the overhead costs of such a department would be any more than is now being spent through the various relief mediums in Texas."

HOLC and Baltimore Housing Authority Studying 50-Block Blighted Area Reclamation Project

AN official release from the Federal Home Loan Bank Board announces that the Board and the Home Owners' Loan Corporation will throw their influence back of authorized programs to protect and reclaim sound residential areas threatened by encroaching slums. A statement by Fred W. Catlett, member of the Bank Board, reveals that the HOLC, giant subsidiary of the Board, already is cooperating in a test survey in conjunction with the Housing Authority of the city of Baltimore—a survey which is backed by the United States Housing Authority and for which funds will be sought from the Works Progress Administration.

The survey will seek to ascertain the present value of 1,600 homes in a district embracing 50 square blocks, and to envisage the cost of necessary improvements to bring all those homes to a high standard; to lay out or improve streets, alleys, parks and playgrounds; and to estimate the increase in property values which would result from a "redesigned neighborhood." The HOLC will be asked to improve properties it owns and those on which it holds mortgages both as a sound investment and for increased security; mortgage and insurance companies will be asked to cooperate on the same basis; and individual home owners will be urged to join the program as the only means of safeguarding their properties from "neighborhood blight."

Ample funds will be found available in any progressive community for such a program, Mr. Catlett believes, because of the sound security it offers. There are 4,000 lending institutions, with assets of more than $4,000,000,000, in the Federal Home Loan Bank System alone. Such a program is directly in line with the policies consistently followed by the Board to promote better housing. The Board already is sponsoring the Federal Home Building Service Plan, which links lending agencies, architects and technicians, and all elements of the building industry to insure sound and supervised construction in the small home field. Says Mr. Catlett's statement:

"Residential neighborhood decline and disintegration today comprises a most formidable threat to property and tax values, to mortgages and equities. Attempts to arrest this decline have largely been sporadic, disjointed and uncorrelated. Here and there individuals adopt praiseworthy efforts at rehabilitation, but the over-all picture changes little for the better.

"The Federal Government has accomplished a tremendous improvement in the housing situation through its comprehensive program of clearing slum areas and replacing them with modern low-cost housing projects. However, it is my belief

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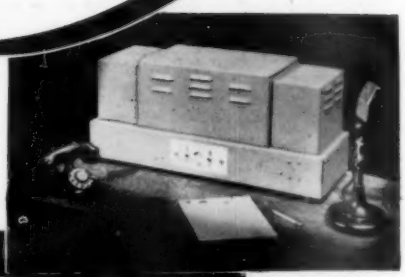
A NEW line of General Electric police-radio equipment has been designed with one purpose—to give *better protection at lower cost.* You get better protection because it's better equipment—developed with painstaking care through a period of two years, and backed by the experience which has made General Electric one of the leaders in radio transmission and reception. This new equipment includes important advances in police radio and provides greater range, greater sensitivity, and more freedom from outside interference than ever before.

It's lower in cost, too—from 25 to 35 per cent lower than previous designs. With better, more dependable equipment available at so much lower cost, there's no reason why every city should not benefit from the added protection afforded by police radio. If you are interested in new or additional equipment for your city, take advantage of the opportunities offered in the attached coupon.



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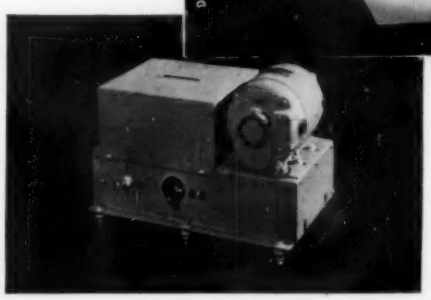

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General Electric, Schenectady, N. Y., Radio Dept., 89A

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that the housing problem in any city cannot be solved by Government building alone. The ramifications of sub-standard areas are so widespread that it is beyond the ability of the Government to remove all such areas. Furthermore, neighborhood blight and age depreciation are continually at work breaking down existing values and creating new sub-standard areas.

"Better housing projects break up slums, but not until fine homes have decayed and been ruined and many thousands of dollars in losses have been suffered. The progress of this blight can be observed in most of our cities. Home owners with expanding incomes and growing families are continually deserting old, established neighborhoods and moving farther and farther from the downtown business areas. The older inhabitants are replaced by those living on a lower economic scale. Rents decrease, values fall, and houses are allowed to deteriorate because the income will not support proper expenditures for repair.

"It is not my purpose to advocate the perpetuation or the attempted rejuvenation of those neighborhood areas whose present physical structure is obsolete and unfit for normal residential use. I am concerned here primarily with those housing areas which have not descended to slum conditions but which show evidence of depreciation below the level of their normal use and purpose. In most cities there are many sections, usually adjacent to downtown areas, where the forces which are causing a decline can be arrested. If the transition of such areas to commercial use is not indicated, every effort should be put forth to save those desirable elements which are worthy of retention and to guide the future life of the neighborhood along lines which will continue its place as a definite civil asset."

Advantages of Advance Planning Demonstrated

THE need of an orderly program for carrying out capital improvements has been amply demonstrated by the experiences of many municipalities during the last five years. As Harold M. Lewis, Chief Engineer of the Regional Plan Association of New York, pointed out at the National Conference on Planning, in Minneapolis last June, municipalities which had been far-sighted enough to provide themselves with an advance program have been able to use public works as an effective means of relieving unemployment and have received full value in return for each dollar expended directly or supplied from Federal emergency appropriations.

"Where such programs were not available," said Mr. Lewis, "hastily conceived projects have had to be substituted with considerable waste of money and energy all along the line. Delays, in many cases serious and resulting in a failure to get projects approved, were common.

"In normal times it is equally advantageous to have a comprehensive group of projects prepared well in advance. If material prices and land values are unfavorable for certain ones, they can be deferred in favor of others with a considerable saving to the public purse."

A Fivefold Capital Budget and Improvement Program

Five definite steps desirable in the preparation and execution of capital budget and improvement programs for metropolitan regions were outlined by Mr. Lewis:

1. A Master Plan is needed on which to base the program. There should be separate master plans for each of the municipalities and counties in the region, but a regional plan which will weigh the needs and ambitions of each separate municipality and provide a framework into which local plans can be fitted is also essential.

2. A study should be made of the probable future income and departmental expenditures of each municipality to determine how and to what extent a capital improvement program can be financed.

3. Long-term capital budgets should be worked out for each municipality and brought up to date each year. These should be adopted by the elected officials, and appropriations for capital improvements should then be limited to items in such budgets.

4. A regional planning agency should keep constant check on the proposals of region-wide importance. This would indicate which are the most urgent missing links, and a list of such projects should be prepared periodically as a guide to those responsible for the local problems. Such regional agencies may be official or unofficial, but in either case they will remain purely advisory.

5. Each local planning agency should be given some definite control over the selection of projects which will go into the official capital budget. The authority and responsibility for the final selection must remain with the elected officials.

Experience of the New York Region

The Regional Plan of New York and Its Environs, as being carried on by the Regional Plan Association, was cited by Mr. Lewis as an example of the effective use of regional public works programs.

The Graphic Regional Plan was published in 1929 and included a list of 51 proposals presented as requiring urgent consideration. Four years later, in 1933, progress on these was reviewed, and it was found that 15 had been completed or were being carried out, in whole or in part; an additional 13 had been officially adopted or studied, in whole or in part. A new list of 47 urgently needed projects was presented, grouped under the headings of traffic improvement, transportation improvement, conservation and development, new park areas and relief of traffic knots.

Four years later, in 1937, a second report of progress was made, and it was shown that construction had taken place in whole or in part on 20 of the 47 projects in the earlier program (14 of these 20 had been proposed for construction and the other six for only mapping or further study). Acquisition of land had occurred on five additional projects. Substantial progress was therefore recorded in spite of the depression years, and some parts of the program had advanced even faster than was contemplated.

A new list of urgently needed projects was again presented, this time including 42 grouped under traffic improvement, improvement of transportation and new park areas.

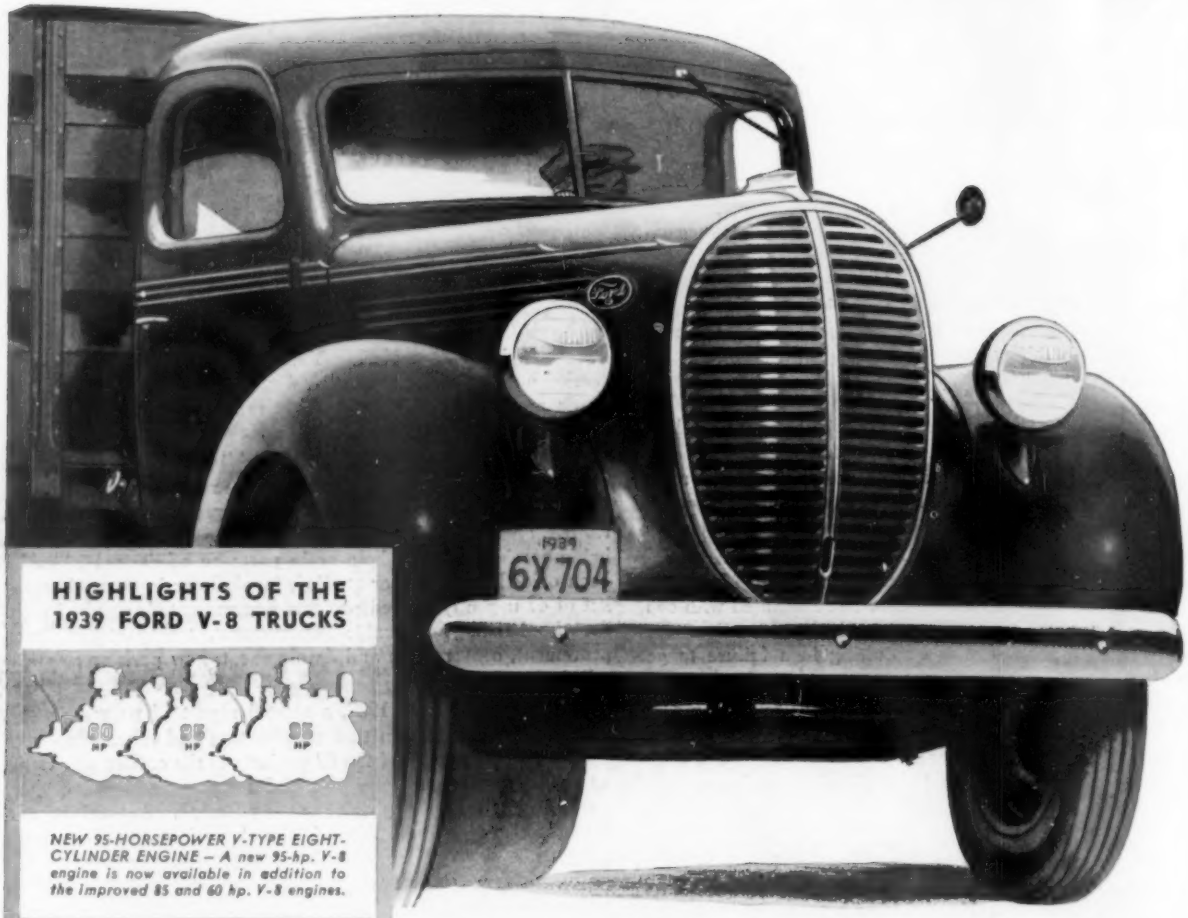
It has been demonstrated that such regional public works programs are welcomed by both the officials and citizens within the Region and are being used more and more for checking the urgency of local projects which may be advanced for official action.

Finally, said Mr. Lewis: "A Municipal Planning Commission may well approach the problem of a capital improvement program by listing proposals on its Master Plan under the following three headings: first, those which might be carried out within the next six-year period; second, a group for consideration within the ensuing six-year period; a third group which would include projects for later consideration. It would be desirable to have approximate cost estimates for projects in the first two groups, and the total cost for each group should not exceed that which could reasonably be financed within the period.

"An absolute essential for any capital budget program is periodical revision and extension so that it will always look ahead for about the same period of time."

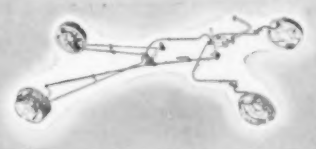
THE TRUCK FOR THE JOBS OF 1939

FORD V-8



HIGHLIGHTS OF THE 1939 FORD V-8 TRUCKS

NEW 95-HORSEPOWER V-TYPE EIGHT-CYLINDER ENGINE – A new 95-hp. V-8 engine is now available in addition to the improved 85 and 60 hp. V-8 engines.



NEW HYDRAULIC BRAKES–Four-wheel hydraulic service brakes, built to Ford standards of safety, are regular equipment on all 1939 Ford Trucks.

- New-type piston rings for improved oil economy.
- All-steel cabs, insulated, ventilated and with Safety Glass throughout.
- 34-in. frame width standard on all units.
- Improved Semi-Centrifugal Clutch.
- Worm-and-roller steering.
- Full torque-tube drive.
- Straddle-mounted driving pinion – ring gear thrust plate.
- Full-floating rear axle.
- Factory-installed two-speed rear axle available at extra cost.
- Ford Engine and Parts Exchange Plan. Saves time. Saves money. Avoids long, costly layovers.

THIS YEAR Ford gives economy a new meaning—*over a wider range of truck operations* than ever before.

To the time-proved 85-hp. and 60-hp. V-8 engines is added the *new 95-hp. V-8 engine* for greater power and speed. It is available in the Regular and C. O. E. Trucks. There are *new hydraulic service brakes* for quick, straight-line stops, with easy pedal pressure. Along with these new features are those *time-tested* truck features that have set the high Ford standard of performance and reliability.

For 1939 there are 42 body and chassis types, with a choice of equipment including factory-installed two-speed rear axle, optional gear ratios, transmissions, clutches.

Ten billion miles of payload performance have proved the Ford V-8 engine and the rugged, dependable construction of Ford Truck chassis equal to the toughest jobs.

If you want to know why there are more Ford Trucks on the road than any other make, examine the Ford Truck. See the 1939 Ford V-8 units. Match them feature for feature with any other truck of comparable size and price. *Know the difference before you spend another truck dollar.*

Arrange through your Ford dealer for a new Ford V-8 Truck with which to make an actual "on-the-job" test.

FORD MOTOR COMPANY, MAKERS OF FORD V-8 CARS AND TRUCKS, MERCURY, LINCOLN-ZEPHYR AND LINCOLN MOTOR CARS

Graphical Presentation of a City's Bonded Debt

By F. A. RUSSELL

Professor of Civil Engineering, Kansas University; and Councilman, City of Lawrence, Kans.

SINCE statistical records are usually dry and hard to grasp, it is often helpful to present them in a scaled graphical diagram which will be more easily understood and retained. The case of the bonded debt of the city of Lawrence, Kans., is shown in the accompanying diagram.

This chart in general is self-explanatory. On the vertical direction is shown the total of bonds as issued, with graduations for each $100,000, while the horizontal part is graduated in years. This covers the time limit from 1914 to 1955—the period necessary to complete payments on all bonds now outstanding. The first bond plotted, that of the earliest issue which was in force in 1914, scaled off vertically for the amount of $115,000. This shows that only interest was paid on this bond up to 1937, when payments began on the principal and will gradually cut down on the stair steps shown, until entirely paid out in 1955.

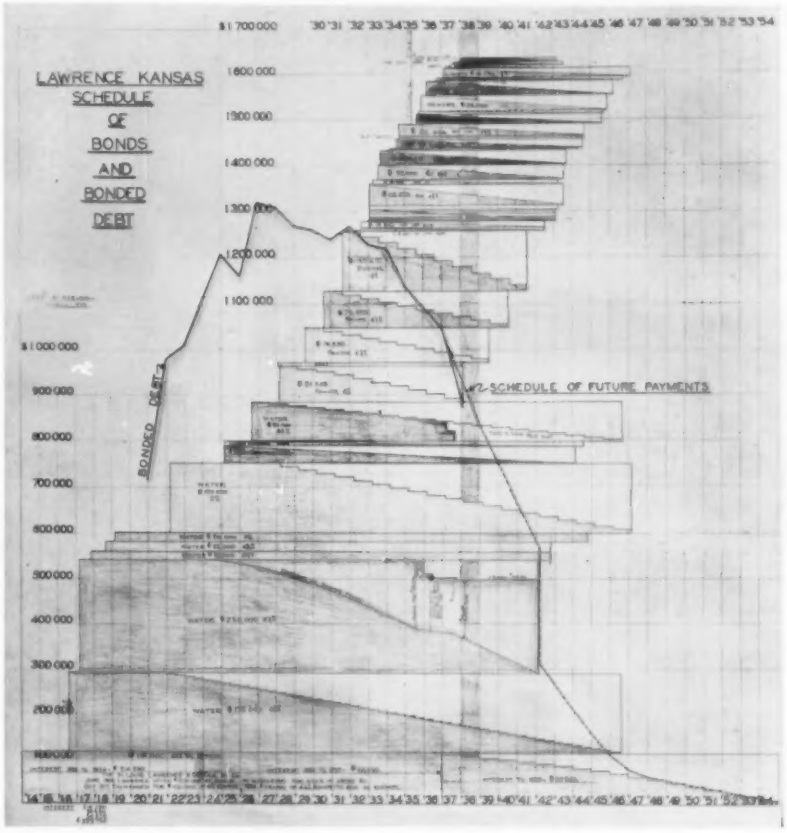
The next bond, $175,000 for the purchase of the original water plant in 1916, runs until 1946. The $175,000, added to the $115,000 for the railway bond, gives the location for the top line of the water bond. Payments on these bonds were started in 1922 and have continued regularly on this schedule to date and will pay out in 1946. The shaded area shows the unpaid balance at any time.

The next bond, for $250,000, for extension of water plant and distribution system, was a straight term bond to be paid in 1942. In 1924, a sinking-fund was started to meet this bond when due, since these bonds could not be called. The amount of the sinking-fund for each year is scaled down from the top, so the ordinates below this line are the net obligation on this bond. In 1936 there was an opportunity to acquire a part of these bonds, for which payment was made out of the sinking-fund, and the bonds canceled. This accounts for the irregularity in the sinking-fund line.

The remainder of the diagram has been prepared in this same manner, showing the term bonds as the entire rectangle, and the serial bonds with uniform steps until finally paid out. Some of the smaller issues are shown as triangles rather than showing the individual steps on each.

It will be seen that most bonds issued after 1928 are 10-year serial bonds. In 1935, the government of the city was changed from the Commission form to the Mayor and Council system, with two councilmen from each of the six wards. Lawrence has an assessed valuation of $15,000,000 and a population of 14,000 plus 4,500 students at the University.

It will be seen that for each year, if we add the ordinates cutting through the unpaid part of each bond issue, the total will be the net bonded debt. These totals have been taken for each year, and the heavy line shown as bonded debt has been plotted 1920 to 1938. In 1937, a schedule was prepared for future payments shown as a dashed line. Purchase of some bonds from the water sinking-fund, in the early part of 1938, caused the actual debt line to drop below the proposed future line. As time goes on, there no doubt will be additional bond issues which will cause a variation from the future schedule. New issues could be shown on a separate chart, or could be superimposed on this same chart, in which case it might be desirable to carry two bond debt lines; one to follow as nearly as may be to proposed schedule, and the other to show the total debt, including the new issues.



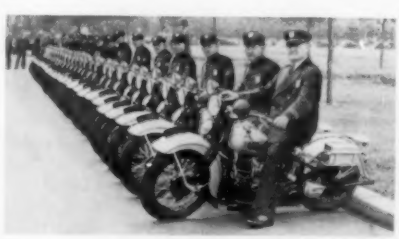
Miniature Forest Planted at Approach to San Francisco-Oakland Bridge

SAN FRANCISCO, CALIF.—Nine hundred trees and plants of 26 coniferous varieties—in reality a miniature forest of evergreens, costing $90,000—have been planted at the San Francisco approach to the $77,000,000 San Francisco-Oakland Bay Bridge to cover the bare, raw background of the approach as well as to give an out-of-doors look to the gateway to the city. Tall cypress and redwood, bright green English holly and stout oak trees were transplanted to make a scenic background for the world's greatest bridge. A total of 121,000 square feet of the main entrance to the bridge was planted with grass, shrubs and trees. State Arboriculturist H. D. Byers designed the landscaping scheme, with 64,000 square feet planted to lawn of seaside bent-grass, the remainder devoted to coniferous plants and flowers.

Two oak trees carry out the motif of the bridge's sturdy strength. The branches of 18 sequoia or redwood trees, grouped at either side of the plaza, will give the design effect of the arching

CLEVELAND SETS NEW MARKS *IN TRAFFIC SAFETY*

FROM January 1 to August 15, 1938, Cleveland, Ohio cut its traffic deaths from 130 to 68—a decrease of 48% as compared with the same period last year. Sixty-two lives saved! Non-fatal traffic casualties were cut from 2,607 down to 1,589. A splendid achievement, Cleveland! And Cleveland is carrying on—by increasing the strength of its motorcycle squads. Convinced by the dependable performance of 47 Harley-Davidsons already in service — the city recently purchased 27 new 1939 Harley-Davidson Police Motorcycles, as offering the utmost in modern, efficient traffic law enforcing equipment.



Phone your Harley-Davidson dealer and let him bring over a new 1939 model for your inspection.

HARLEY-DAVIDSON MOTOR CO.
MILWAUKEE, WISCONSIN

Why not remember to mention THE AMERICAN CITY?

SAN FRANCISCO-OAKLAND BAY BRIDGE BEFORE LANDSCAPING

cables of the suspension span to be glimpsed by motorists as they ascend the ramp. The two oak trees, with trunks 12 inches in diameter, were obtained from the State Farm at Davis and have had their roots encased in a large wooden box for some ten years. Holes for the planting of the trees were dug by means of a power machine which completed each hole in a few minutes. Several wheelbarrows of material consisting of seven parts loam, two parts peat moss, and one part fertilizer were dumped into the hole after each tree was planted and the box enclosing the tree roots partly demolished. In a few months the boxes will be entirely removed. Fifty-two Lawson cypress trees provide a background, while 40 cedars give a silhouette effect and 18 slender Irish yews add a more formal air. A Japanese boxwood hedge borders the area, and English holly highlights the scene.

CHARLES GEIGER.

AN AIR VIEW OF THE BAY BRIDGE WITH THE LANDSCAPED PLAZA

Photo by courtesy of California Toll Bridge Authority

American Municipal Association Adopts Important Resolutions

AT THE fifteenth annual convention of the American Municipal Association, held in Chicago, October 15, the following resolutions, with others of a more routine character, were adopted:

LOCAL SELF-GOVERNMENT

Whereas, citizen participation in local self-government has long been considered the training ground and the guarantee of democracy; and

Whereas, there are many governmental functions which can be most economically and efficiently performed by municipal government under the direct control of citizens; and

Whereas, domination of local affairs by state governments through the use of compulsion rather than educational methods has frequently resulted in increasing costs, impairing efficiency through administrative rigidity, and other undesirable consequences; therefore be it

Resolved by the delegates to the 1938 annual convention of the American Municipal Association that each state league of municipalities and the member municipalities thereof are urged to inform citizens and state officials in vigorous fashion of the dangers arising from the tendency to centralize at state capitols control over matters which can be administered by local officials under the direct supervision of the citizens of their respective communities.

FINANCING AND PROGRAMMING WORK RELIEF

Whereas, the present public relief and work programs throw upon local government financial burdens too heavy to be supported out of local resources; and

Whereas, it is now necessary to examine from a long-range viewpoint administrative technique and method of financing; therefore be it

Resolved, that the executive committee of the American Municipal Association is hereby directed to initiate a thorough joint study by the Federal, state and local governments of this problem, to the end that a permanent policy may be formulated providing for a sound method of financing and the most economical plan of administration.

RESOLUTION ON HOUSING

Resolved, that the attention of each league of municipalities and its member municipalities is directed to the desirability of studying carefully the housing program in which municipalities throughout the country are now participating.

ALLOCATION OF ROAD-USER REVENUES

Whereas, one of the most pressing problems now confronting the cities and villages of this country is that of financing local roads and streets; and

Whereas, it appears that approximately 40 per cent of the total motor-vehicle traffic in this country is borne by city and village streets; and

Whereas, at present only a small share of motor-vehicle revenues are returned to cities and villages, thereby resulting in heavy financial burdens on local general property taxpayers; and

Whereas, it is desirable that accurate and complete data as to highway aids and policies in each state be gathered because of the present lack of such information, which will apparently be only partially provided by the surveys now being made, therefore be it

Resolved, that the proper officers of the American Municipal Association are hereby directed to proceed to assist the leagues in their efforts to secure fair financial treatment for cities and villages in the matter of highway construction and maintenance in their relationships with the Federal, state, county and township levels of government; and be it further

Resolved, that the American Municipal Association immediately proceed within the limits of its facilities to collect and supply to each league accurate and complete data as to existing highway aids and policies with respect to these various levels of government.

TAXATION OF MUNICIPAL SALARIES AND BONDS

Whereas, in the past, practically all changes in taxation methods, and the exemptions incident thereto, have discriminated against municipalities by constantly reducing the local tax base in the face of continuing demands for essential governmental services; and

Whereas, Federal or state taxation of municipal salaries and bonds will raise municipal costs for these purposes; now, therefore, be it

Resolved that the American Municipal Association, cognizant of this past experience, strongly recommends that any proposed changes in the present tax-exempt status of municipal salaries and bonds should be reciprocal by actually securing for municipalities, through local taxation of state and Federal property, through a municipal share of state or federally collected income taxes, or otherwise, a revenue sufficient to offset such increased municipal costs.

Council-Manager Plan Up for Adoption in Seven Cities

Seven cities are voting November 8 on adoption of the council-manager system of government. They are Chicopee, Cambridge and Northampton, Mass.; Battle Creek, Midland and Traverse City, Mich.; and Yonkers, N. Y.

The same number of municipalities have already voted adoption of the plan this year. Twelve cities adopted the plan last year, and seven in 1936.

The number of council-manager governments now totals 472 cities and 7 counties. All but 21 of the cities and all the counties are in the United States.

LARCHMONT COPS GET THERE IN 1½ MINUTES!

Fast teamwork at 3 A. M.

A passerby heard the cash register ring in a closed drug store . . . notified the Larchmont police.

Radio car went to store . . . officer found no signs of forced entry or any open door or window . . . radioed for second patrol to help cover 3 exits.

Second car arrived in less than 3 minutes and captured the robber, who had hidden in store before closing, just as he broke out through cellar door.

. . . since they've had Western Electric Radio

Chief William J. Keresy says that since August 21, 1937—when Larchmont's Western Electric radio system went into service—his men have made many arrests they could not have made without radio.

Though Larchmont, N. Y. is not a large town, it provided its police with the latest 2-way radio equipment. The system includes a 5 watt Western Electric transmitter and a receiver at the station house—receivers and ultra-high frequency transmitters in the 3 patrol cars.

The town is divided into 3 districts, with a car assigned to each. Tests have shown that to go from one end of a district to the other takes only 3 minutes. The average time in answering calls is *less than half of that.*

Like Larchmont, many small communities all over the country now enjoy the added protection which Western Electric radio gives. There's equipment designed to meet the needs of *your* community—whatever its size. For details, write to Graybar Electric Co., Graybar Building, New York.

Western Electric Police Radio is giving added protection to 45,000,000 people.

Western Electric

Distributed by GRAYBAR *Electric Co. In Canada: Northern Electric Co., Ltd.*

POLICE RADIO TELEPHONE EQUIPMENT

Forward Steps

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Traffic Safety, Civic Beauty, Aims of $2,000,000 Memphis Street Program

MEMPHIS, TENN.—Traffic safety and civic beauty are companion benefits of a $2,000,000 street improvement program now being carried on in Memphis, through Federal allotments supplementing state and city funds. The chief purpose of the program, however, is worthwhile employment for several hundred able-bodied, jobless Memphis citizens. Traffic hazards are being eliminated and boulevards and parkways are being made more attractive, with resultant employment for Memphis workmen, some paid by the Works Progress Administration and others from funds made available by the Public Works Administration and the Bureau of Public Roads of the U. S. Department of Agriculture.

The program as a whole consists of several separate projects, correlated and coordinated. Under a $251,376 WPA project, concrete curbs and gutters are being built to protect shoulders of ragged-edged streets and to provide better drainage, and under a $118,998 project for graveling city streets, 25 miles of muddy and dusty streets have been eliminated. Through a $43,570 project, crews are oiling gravel streets, repairing old and badly worn oil streets, smoothing out rough places, and otherwise giving the streets a thorough overhauling. WPA workers also are reconditioning concrete base, repairing curbs and gutters, and laying new concrete surface on a number of streets under a $453,643 asphalting project for resurfacing streets bearing heavy traffic. This project, started in 1935, was extended by a supplementary grant of $265,915 in 1938.

Base material for many of the Memphis street projects is being supplied by the city's new rock-crushing plant, where 150 to 200 tons of gravel is ground out from old torn-up pavement. It is estimated that through this plant the city will be able to salvage $84,000 worth of old pavement materials.

Two important traffic arteries are being widened under a $266,665 project undertaken jointly by the state and the Federal Bureau of Public Roads, under a recently approved $1,000,000 PWA allotment; six other streets will be widened, and eight resurfaced with asphalt pavement. A WPA project, entailing expenditure of $87,289, has made possible the extension of Riverside Drive with a new link which provides a sweeping view of the Mississippi River. With the completion of this link and the repaving and widening projects, a complete parkway loop will be available.

To make the highways safe as well as wide and beautiful, dangerous grade crossings have been eliminated by the construction of two concrete viaducts, one of them 3,000 feet long, and by two underpasses, one of them 1,400 feet long and built on a plan that eliminates center posts.

Children's safety has been the motivating purpose in construction of new sidewalks at 16 schools under a $100,348 WPA project which includes the building of new walks to replace muddy paths at parks, fire stations and other city-owned property.

Nor have the back streets—or alleys—been neglected. An alley improvement program already under way has been expanded through a supplemental grant of $170,484. When work in progress is completed, Memphis will be a city where motoring is both safe and pleasant.

WILLIAM B. FOWLER,
City Engineer.

A Municipal Building That Serves a Town and a Village

KENMORE, N. Y.—The village of Kenmore is part of the town of Tonawanda, although it has a separate government. The Kenmore Municipal Building was constructed by the town of Tonawanda on land furnished by the village of Kenmore under a 99-year lease.

No bonds were issued by the village. The total cost of the building was $216,000, 45 per cent of which was contributed by the PWA. Bonds issued by the town for the remainder cover a period of thirty years; therefore, the only expense to the village is 50 per cent of the maintenance cost, which is approximately $4,250 a year. The building is operated by the Mayor of the village and the supervisor of the town of Tonawanda.

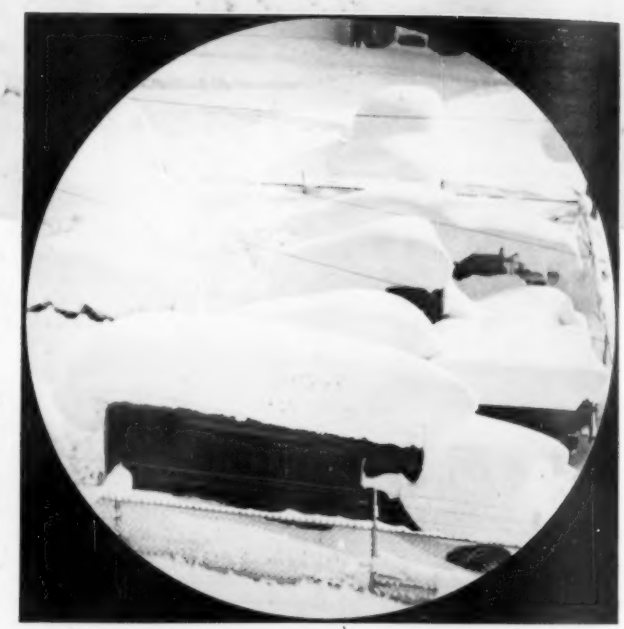
A corridor runs through the center of the building, the entire west side of which is occupied by the village of Kenmore, the entire east side by the town of Tonawanda. On the second floor, in the rear of the building, are the public assembly room and the court room, used jointly by both municipalities. The assembly room, the interior of which is shown herewith, seats about 200 people and can be converted into a large room by opening the folding doors between this room and the court room. In its part of the second floor, the village has a good-size room in which public hearings can be held by the Board of Trustees.

The building is air-conditioned throughout and has an effective cooling system which keeps the rooms in fine workable condition even on the hottest day.

WALTER DUCKER,
Village Clerk.

ASSEMBLY ROOM IN KENMORE'S MUNICIPAL BUILDING

MUNICIPAL BUILDING SERVING TONAWANDA AND KENMORE, N. Y.



SNOWBOUND ?

Not for long if you have

JOY LOADERS...

Traffic lanes in downtown and outlying business centers are quickly opened with Joy Loaders.

Fast — mobile — efficient — this unit provides quick removal of snow from congested areas at exceptionally low costs.

Joy Loaders have all year 'round utility, due to their immediate adaptability to loading coal, dirt, cinders and similar materials. One man handles machine and all loading functions are controlled from heated cab by means of centralized hydraulic operating levers. Ask for bulletin.

JOY MANUFACTURING CO.
FRANKLIN ··· PENNSYLVANIA

Pennsylvania Municipal Manager Uses Films to Report Local Problems

COUNCILMEN and citizens of Sewickley, Pa., learn about their community problems through the movies. Borough Manager John C. Hiteshew, reports the International City Managers' Association, has introduced movie-reporting as a successful device to acquaint councilmen, later the citizens, with details of municipal work and angles of specific local problems.

With used equipment purchased for approximately $100, Manager Hiteshew during the past three months has made and shown 500 feet of film. The movies include such subjects as zoning matters up for action, the water-works system, needed street improvements, and operation of sewage-disposal plants in other towns, to compare with a proposed plant for Sewickley.

This winter the local woman's club and civic clubs, the board of trade and the public schools will see the films upon request. Later they will be filed as a permanent record of Sewickley affairs.

Park and Playground Areas in the Region of Chicago

TO help the general public to increased realization of the fact that parks and playgrounds are essential to sound growth in modern communities and are needed in direct proportion to the number of residents, the Chicago Regional Planning Association has compiled the accompanying table of park and playground acreages in many of the suburban municipalities in the Chicago metropolitan region.

Of the 114 communities listed, 35 have 10 acres or more for each 1,000 population, and 28 others have between 5 and 10 acres per thousand. Dividing the communities into four population groups, the average number of acres per 1,000 population is shown in the following table:

Population	Number of Communities	Acres Per 1,000
Under 10,000	79	9.7
10,000-20,000	18	5.9
20,000-50,000	6	6.6
50,000 and over	11	6.1

In commenting on these figures the Chicago Regional Planning Association says:

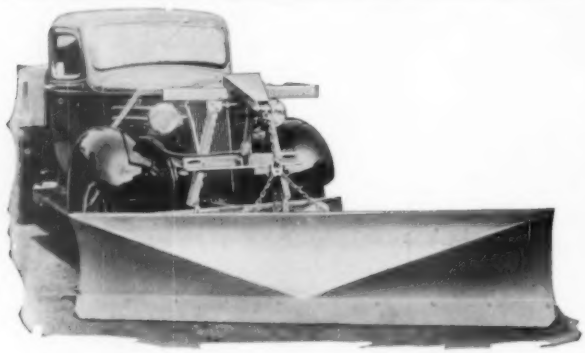
"Future growth in these municipalities will require additional park and playground area, and in proportion to their growth. Every community should make a careful study of its recreational needs and prepare a definite program to acquire needed tracts as rapidly as local resources permit.

"City and village officials have authority to proceed with the acquisition and

PARKS IN MUNICIPALITIES IN THE REGION OF CHICAGO

City or Village	Parks and Playgrounds: Acres of Parks	Acres of Playgrounds	Acres of School-Grounds	Total Acres	Population 1938 (Estimated)	Acres of Parks per 1000 Persons
Algonquin	14.0	0.8	1.0	15.8	950	16.6
Arlington Heights	12.0		23.5	35.5	6,000	5.9
Aurora	216.0	49.0	20.0	285.0	50,000	5.7
Barrington	42.0		2.0	44.0	3,900	11.3
Batavia	3.0		2.0	5.0	5,300	0.9
Bellwood	18.5	2.0	1.5	22.0	5,700	3.9
Bensenville			19.0	19.0	2,200	8.6
Berkeley			5.0	5.0	1,000	5.0
Berwyn	20.0		3.1	23.1	54,000	0.4
Blue Island	35.0		5.0	40.0	19,000	2.1
Brookfield	37.0			37.0	12,000	3.1
Burlington	15.0	5.0	15.0	35.0	4,400	8.0
Calumet City	10.0		17.9	27.9	14,000	2.0
Calumet Park			2.0	2.0	1,550	1.3
Chicago Heights	5.0	17.0	32.0	54.0	23,000	2.3
Chicago Ridge			1.0	1.0	350	2.9
Cicero	37.6		11.0	48.6	73,000	0.7
Clarendon Hills	1.0		2.0	3.0	1,200	2.5
Crete	20.0		10.0	30.0	1,550	19.4
Crown Point		5.0	7.0	12.0	4,450	2.7
Crystal Lake	29.0	0.3	19.0	48.3	4,300	11.2
Deerfield	0.3	9.3	2.0	11.6	2,300	5.0
Des Plaines	14.5		23.5	38.0	10,500	3.6
Dolton	20.3		1.5	21.8	3,300	6.6
Downers Grove			21.0	21.0	11,000	1.9
Dyer	3.0	5.0	10.0	18.0	760	23.7
East Chicago	105.0		40.0	145.0	59,500	2.4
East Gary	52.0		7.0	59.0	3,000	19.7
East Troy	9.0		5.0	14.0	800	11.5
Elgin	308.3	0.2	45.0	353.5	38,500	9.2
Elkhorn	7.0	15.0	5.0	27.0	2,600	10.4
Elmhurst	* 66.0		24.0	90.0	17,500	5.1
Elmwood Park	4.5		3.0	7.5	13,000	0.6
Evanston	45.2	43.0	95.8	184.0	71,000	2.6
Forest Park	16.0	0.5	3.2	19.7	16,500	1.2
Gary	513.5	6.5	293.6	813.6	115,000	7.1
Geneva	10.0	1.0	13.0	24.0	4,900	4.9
Glencoe	108.0	18.0	14.3	140.3	7,300	19.2
Glen Ellyn	* 61.0		14.0	75.0	6,700	8.6
Glenview	13.0		2.1	15.1	2,300	6.6
Hammond	85.0	20.0	52.0	157.0	73,000	2.2
Harvey	7.0		41.0	48.0	18,500	2.6
Hazelcrest	7.0		2.0	9.0	1,400	6.4
Highland Park	250.0	100.0	60.0	410.0	14,400	28.5
Hillside			5.0	5.0	1,200	4.2
Hinsdale	25.0	14.3	58.7	98.0	7,800	12.6
Homewood			4.0	4.0	3,700	1.1
Huntley	0.5		2.0	2.5	700	3.6
Itasca	3.5		1.0	4.5	680	6.6
Joliet (Park District)	* 1,469.3	2.3	85.6	1,557.2	73,000	21.3
Kankakee	* 96.5		6.0	102.5	22,000	4.7
Kenilworth	6.7		2.5	9.2	2,800	3.3
Kenosha	* 541.9		51.0	592.9	54,000	11.0
LaGrange	* 37.2		19.2	56.4	12,000	4.7
LaGrange Park			1.5	1.5	3,300	0.5
Lake Bluff	49.0		3.4	52.4	1,600	32.7
Lake Forest	159.0		11.5	170.5	7,500	22.7
Lake Villa	3.0		1.8	4.8	530	9.1
LaPorte	* 250.0	18.5	14.5	283.0	16,600	17.0
Libertyville	142.0		10.4	152.4	4,200	36.3
Lincolnwood	4.5		1.0	5.5	700	7.9
Lisbon	1.0		1.0	2.0	140	14.3
Lockport			10.0	10.0	3,700	2.7
Lombard	17.0		11.0	28.0	7,600	3.7
Maywood	18.0	5.0	8.2	31.2	29,000	1.1
Melrose Park	18.0		1.0	19.0	11,500	1.7
Michigan City	235.3	27.5	47.0	309.8	29,000	10.7
Midlothian	2.5		2.0	4.5	2,000	2.5
Momence	14.0	21.5	13.5	49.0	2,280	21.5
Montgomery		4.0	1.5	5.5	580	9.5
Morris	19.0	2.0	15.0	36.0	6,200	5.8
Morton Grove	1.0		16.0	17.0	2,300	7.4
Mount Prospect	14.5	2.0	5.3	21.8	1,500	14.5
Mundelein	3.0		2.0	5.0	1,180	4.2
Naperville	35.0	1.0	10.0	46.0	5,800	7.9
Niles Center	72.0		3.0	75.0	7,300	10.3
Northbrook	2.5		1.2	3.7	1,400	2.6
North Chicago	50.0		5.0	55.0	9,500	5.8
Oak Lawn			6.3	6.3	2,400	2.6
Oak Park	60.9	10.8	44.5	116.2	72,000	1.6
Ogden Dunes	18.5			18.5	200	92.5
Oswego			0.6	0.6	1,050	0.6
Palatine	2.0		10.0	12.0	2,500	4.8
Park Ridge	7.1	6.5	5.0	18.6	12,500	1.5
Peotone	13.0		1.5	14.5	1,200	12.1
Plano	13.9		2.0	15.9	2,000	8.0
Racine	* 609.0	40.0	110.0	759.0	71,500	10.6
Riverdale	17.0		4.5	21.5	2,800	7.7
River Forest	15.3		10.0	25.3	10,500	2.4
Riverside	82.2	50.5	15.2	147.9	8,000	18.5
Roselle	3.0		0.6	3.6	950	3.8
St. Charles	19.0		15.0	34.0	5,850	5.8
Schiller Park			1.5	1.5	800	1.9
Silver Lake	1.0		9.0	10.0	380	26.3
South Wilmington			2.0	2.0	700	2.9
Sturtevant	2.3		1.3	3.6	850	4.2
Summit	5.0	3.0	5.0	13.0	7,100	1.8
Tinley Park			1.0	1.0	950	1.1
Valparaiso	7.0		15.0	22.0	8,700	2.5
Villa Park	12.7	5.3	8.0	26.0	7,600	3.4
Walworth	0.3	5.7	3.0	9.0	1,050	8.6
Wauconda	2.0	2.0	12.0	16.0	600	26.7
Waukegan	* 268.0		55.0	323.0	37,500	8.6
West Chicago	83.0	0.2	14.0	97.2	3,750	25.9
Western Springs	23.0		6.2	29.2	4,600	6.4
Westmont	3.0		1.0	4.0	3,200	1.3
Wheaton	69.0		19.0	88.0	8,200	10.7
Williams Bay	6.5		4.0	10.5	750	14.0
Whiting	50.0		8.4	58.4	11,100	5.3
Wilmette	50.0	7.4	10.9	68.3	18,000	3.8
Wilmington	30.0	10.0	5.0	45.0	1,900	23.7
Winnetka	184.5		27.6	212.1	14,000	15.2
Yorkville	4.0	0.5	4.0	8.5	530	16.0
Zion	214.0		5.0	219.0	6,150	35.8
TOTAL	7,387.8	537.6	1,851.9	9,777.3	1,448,760	6.7
Chicago	5980.0	288.0	400.0	6668.0	3,600,000	1.9

* INCLUDES PARK AREAS OWNED OUTSIDE THE MUNICIPAL LIMITS



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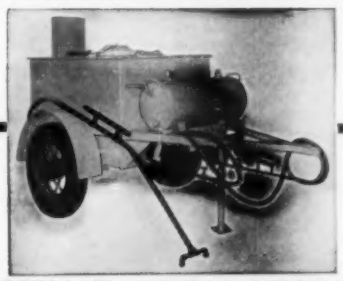

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Hand and Motor driven spray.
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"RAIN for the Asking"

A catalog that explains in detail the various types of watering equipment designed to keep your parks and parkways always fresh and green. Skinner System engineering and consulting service has solved every conceivable type of watering problem. We are equipped to handle your watering problems better at lower cost. A card or letter brings you the catalog and details of our service. No obligation.

The Skinner Irrigation Co., 447 Canal St. Troy, Ohio

development of play areas, but park districts enjoy certain advantages in accomplishing a recreational program and may be organized by popular vote after petition of 100 legal votes to the county judge. An important activity of the Chicago Regional Planning Association is to help any group of interested citizens plan the acquisition of parks and playground sites or the formation of a park district. . . .

"It is recommended that each community adopt a program of park and playground development on the basis of 10 acres for each 1,000 population. Approximately 3 acres of the 10 should be in playgrounds accessible to all residential districts."

Twelve Months of the U. S. Housing Authority

AT the annual meeting of the National Association of Housing Officials in Washington last month, Administrator Nathan Straus of the United States Housing Authority presented a brief summary, here reproduced, of USHA's activities during its first year. In reply to a request from the Editor of THE AMERICAN CITY for information as to the meaning of the terms "construction costs" and "local contributions" as used in this statement, Miss Catherine Bauer, Director of Research and Information of USHA, writes:

"The item 'construction cost' signifies the cost of 'dwelling facilities,' as defined in the Act. This excludes land, demolition and non-dwelling facilities, but includes architectural fees, overhead and certain equipment. It should be noted that the latter items are not included in the 'building permit values' collected by the Bureau of Labor Statistics. If the New York and Buffalo contract costs were figured on a comparable basis with the building permit figures, they would run somewhat lower than the figures shown on the sheet.

"With respect to the item 'local contributions,' the United States Housing Act really makes two requirements: one, as shown, that the local subsidy be at least 20 per cent as great as the Federal subsidy; and, two, that the combined Federal and local subsidies be enough to guarantee that the project will be within reach of the 'lowest income group.' In order to meet the latter requirement, the local authorities have found it necessary in every case to make a greater contribution than the minimum of 20 per cent. Complete tax exemption has been ordinarily provided, in some cases with a small service charge to be paid in lieu of taxes.

"Including the value of this tax exemption, the local contribution would amount, on the average, to 62 per cent of the Federal contribution. On the other hand, it should certainly be pointed out that the city does not actually lose the full amount of taxes theoretically chargeable to the new project. In many cases the actual families who will move into the new projects have not been paying taxes greater than one-third of the amount which would be assessed per dwelling against the new project. Therefore, the actual loss to the city, even without making allowances for former tax delinquency in substandard areas and the future benefits to the city from the elimination of slums, is not very greatly in excess of the minimum local contribution required under the Act."

USHA—ONE YEAR

COMMITMENTS—$573,723,000 set aside for 142 cities in 27 states, District of Columbia, Hawaii & Puerto Rico

LOAN CONTRACTS—$202,807,000 in contracts approved by President for 81 projects in 43 cities, in 19 states (40,636 dwelling units).

FUNDS ADVANCED—$7,545,892, loan funds under these contracts, have been advanced to 28 local authorities.

CONSTRUCTION COSTS (per room)—Maximum cost permitted under Act (cities over 500,000): $1,250 per rm. Contracts let to date: New York City $911; Buffalo $946.

SHELTER RENTALS—USHA projects now under contract. (Estimates) Lowest: $2.00 per rm. Highest: $5.18 per rm. Median: $4.14 per rm.

LEGISLATION—Housing Laws enacted by 4 states (California, Mississippi, New Jersey, Virginia) bringing total to 33 states. Perfecting Amendments enacted by 11 states.

LOCAL AUTHORITIES—Nov. 1, 1937 —— 46 October 10, 1938 —— 205

LOCAL CONTRIBUTIONS—20% of the amount of the Federal annual subsidy is required to be contributed locally under the Act.

62% of the amount of the Federal annual subsidy is the average actually contributed locally under USHA contracts executed to date.

PROSPECTS—More than 5,000 dwelling units (homes) now under construction. An average of 5,000 additional dwelling units will go into construction each succeeding month.

October 10, 1938.

Police Departments Improve with Federal Aid

MUNICIPAL police departments throughout the country are utilizing WPA aid to improve their law-enforcement equipment and procedures, the International Association of Chiefs of Police reports. A recent survey showed that approximately $1,275,085 in Federal funds has been spent on 101 projects in 18 states. Three-quarters of these projects are completed. The WPA employees assist in constructing radio towers, indexing fingerprints, building new police-alarm systems, collecting statistics, and translating foreign literature.

If the Utility Wires Had Been Underground

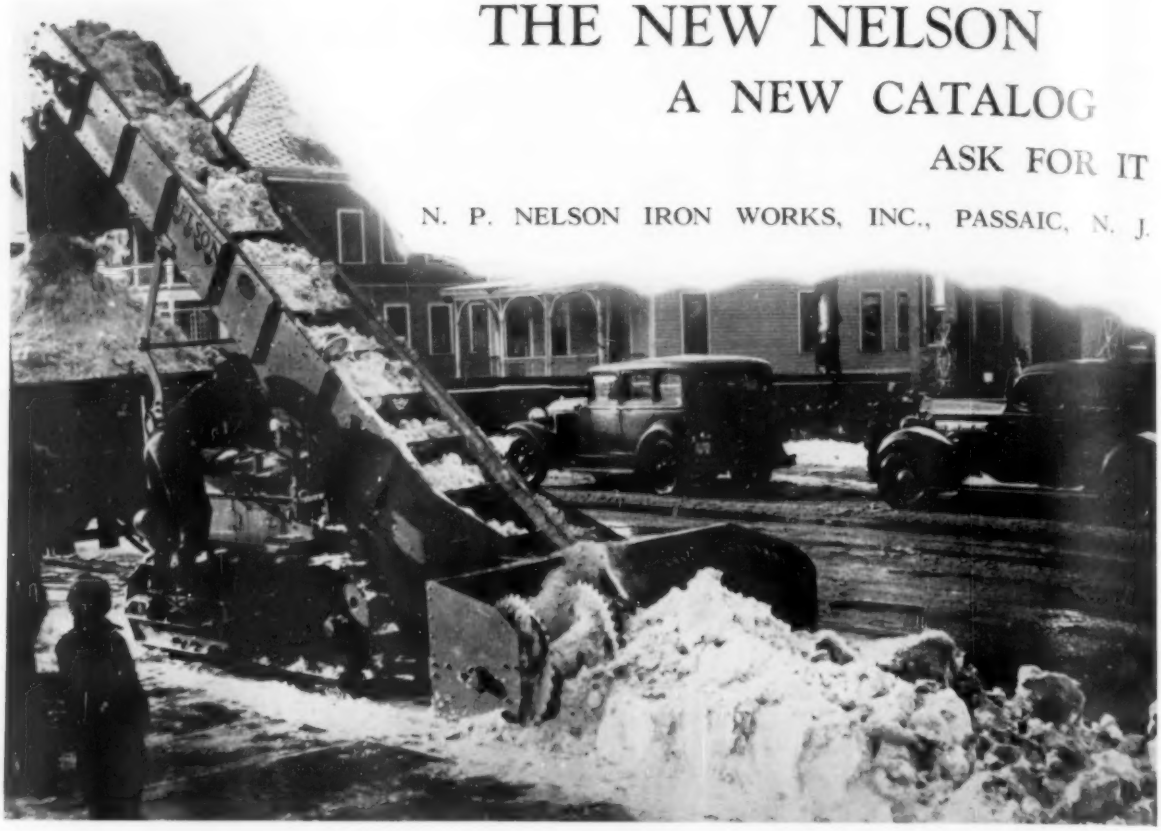
New London and Other Cities Would Have Suffered Much Less in the Recent Hurricane

THE NEW NELSON

A NEW CATALOG

ASK FOR IT

N. P. NELSON IRON WORKS, INC., PASSAIC, N. J.



BAKER

RIGHT DOWN TO THE SURFACE

The town of Lancaster, Mass. (see illustration), last year moved the snow right down to the pavement surface with their Baker Model 187 Landside Snow Plow. The sectional tripping blades rode right on the pavement to do a clean job.

All Baker Blade Truck Plows have this safety feature. Correct curvature, snug fit and smooth hydraulic operation are other features of the 21 models of truck plows, V, one-way and reversible types as well as others for tractors. There's a Baker for your requirements.

Write for Snow Plow Bulletins

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SNOW PLOWS

SECTIONAL TRIPPING BLADES

A City Manager Enlightens the Taxpayers

A Personal Letter To You

Plymouth, Michigan.
July 1, 1938.

Dear Mr. and Mrs. Taxpayer:

Inasmuch as it is your money that is used to operate the City, the Administration feels that you should be informed of the following facts:

1. **TAX RATE.** Your tax rate this year has been reduced from $13.50 to $13.30 in spite of increased revenues necessary for Welfare.

2. **GARBAGE AND RUBBISH** This past year Garbage and Rubbish Collection was added as a municipal activity. Under the old system, if every resident had received Garbage and Rubbish Collection service, it would have cost $25,200.00 The City of Plymouth is performing this service to you for $3,250.00 Health knows no boundary. It is therefore essential, from a good public health standpoint, that we provide this service.

3. **ZONING.** The City Planning Commission is now working on a Zoning plan in order that the values of your property may remain stable. It will prevent encroachment It is hoped that during the early part of 1939 a Zoning Ordinance will be adopted.

4. **STREETS.** On the streets that have all the public improvements, including curb and gutter, the City Commission is willing to place a "Black Top" pavement. The cost to the property owner will be approximately $.50 per lineal foot The City will assume the balance out of the Gas and Weight tax money If you are interested, speak to the City Manager.

5. **TELEPHONE RATES.** During the past year, or so, telephone rates have been decreased in the City of Plymouth. This work has been accomplished by your City Administration. There is a movement now on foot to reduce toll charges to the City of Detroit.

(Over)

6. **FIRE.** A year ago, a piece of modern equipment was constructed, with City help, for a total cost of $1450.00 A similar piece of equipment was sold to another City in the State of Michigan at a cost of $4500.00—a savings to the taxpayer of $3050.00. The fire loss this year will be one of the lowest in the history of the City.

7. **POLICE.** The City of Plymouth has five policemen. The average number of police in the United States is one for every 1000 inhabitants. The City of Plymouth has 1 to every 1100. It has been the policy of the Police Department to protect your property. One policeman was added during the year, but the salary for this policeman is largely paid through additional fines imposed on traffic violators.

8. **BONDS.** The bonded indebtedness of the City of Plymouth now stands at $197,000.00. During the past two years and one-half, the City Commission has retired $113,000 or 35½% of the total bonds which were outstanding Jan. 1, 1936. It has been the policy of the City Commission to pay for improvements as we go without issuing any new bonds whatsoever. Every effort is being made to pay the debt as rapidly as possible. Every $1000 paid to retire this debt saves $45.00 annually in interest charges.

9. **PARTIAL PAYMENT OF TAXES.** A plan has been worked out for property owners to pay their City Taxes on the installment plan. If this plan appeals to you ask the City Treasurer for more details.

10. **CEMETERY LOTS.** The City maintains a Cemetery for its citizens. Lots are sold at a very reasonable figure in one of the most beautiful cemeteries in the State of Michigan. Lots in other Cemeteries would cost 50-75% more. Many have waited until a tragedy has hurried their purchase, but the wise buyer buys when he can make a wise selection.

If you ever have any questions concerning matters of a public nature, we urge you to see the proper official and have them answered After all, the City employees are here for your convenience It is your Government.

Very truly yours,
C. H. ELLIOTT,
City Manager.

WHAT THE PEOPLE OF PLYMOUTH, MICH., GET FOR THEIR TAXES IS TOLD IN THIS LETTER MAILED TO THE TAXPAYERS BY CITY MANAGER C. H. ELLIOTT

Recent City Manager Appointments

CHARLES B. BORLAND, Director of Public Safety, Norfolk, Va., was appointed City Manager of that city, effective September 15, to succeed Thomas P. Thompson, who had been Manager since 1933.

Edward S. Clark, City Engineer, has been appointed City Manager of Kalamazoo, Mich., to succeed Edward C. Rutz, who resigned recently to return to a position in a private corporation.

William J. Deegan, Jr., has been appointed City Manager and City Auditor of Fernandina, Fla., to fill the vacancy created by the resignation of John A. C. Bogart, effective October 1.

Edward C. Peterson, former City Manager of Washburn and Eastport, Maine, has been appointed City Manager of Middleboro, Mass., succeeding H. J. Goodale, who is retiring.

Marvin Reed, Building Inspector of Coronado, Calif., has been appointed City Manager of that city, to succeed Fred L. Johnston.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

IN ITS issue of October 22, *The Bond Buyer* reports that bond issue proposals to be voted on next month aggregate $84,301,966. Other than refunding issues, the proposals for more than $1,000,000 each include:

$14,000,000	San Francisco, Calif. (City and County), Market Street Railway and Bus Purchase and Transportation.	$3,000,000	Montana, Highway.
		2,550,000	Fulton Co., Ga., Various.
		2,102,000	Jacksonville, Fla., Various.
10,000,000	Baltimore, Md., Various.	2,041,667	Duval Co., Fla., Sch. Dist. No. 1, Construction.
4,500,000	Cuyahoga Co., O., Road and Bridge.	1,600,000	Harrisburg, Pa., Water Supply.
4,000,000	Atlanta, Ga., Various.	1,500,000	New Orleans, La., Sewage, Water and Drainage System.
3,500,000	Cincinnati, O., Various.		
3,358,850	Saginaw, Mich., Light and Power Plant.	1,400,000	Middletown, O., Light and Power Plant.
3,347,000	Duval Co., Fla., Various.	1,300,000	Owensboro, Ky., Water and Light.
3,000,000	Cleveland, O., Bridge Construction.	1,275,000	Duluth, Minn., Various.

Recent sales of new issues from October numbers of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$2,000,000	Rochester, N. Y., Tax Revenue	.90	1-5 Ser.	.83
400,000	Dutchess County, N. Y., County Road and Bridge	1.25	5.25 Avg.	1.23
100,000	Agawam, Mass., School	1.5	1-10 Ser.	1.49
150,000	Faribault, Minn., School	1.75	4/5 Opt.	1.54
200,000	Gardner, Mass., City Hall	1.75	1-20 Ser.	1.73
100,000	Sault Ste. Marie, Mich., Community Building	2	1-10 Ser.	1.94
128,000	Sioux City, Iowa, Funding	2.25	6.85 Avg.	2.06
187,000	Wauwatosa, Wis., School	2.5	9.66 Avg.	2.35
125,000	Callaway Co., Mo., Court-House and Jail	2.5	10.25 Avg.	2.499
220,000	Zanesville, Ohio, Municipal Building	2.75	2-21 Ser.	2.70
150,000	Grand Forks, N. Dak., Water-Works Extension	3	8.66 Avg.	2.94
119,000	Hillsdale, N. J., School District	3.75	16.33 Avg.	3.66
275,000	Big Spring, Texas, Water-Works Improvement and Extension	3.75	14.85-16.5 O.-A.	3.71
10,000,000	Pennsylvania Turnpike Commission, Pa., Commonwealth of Pennsylvania Revenue	3.75	9/30 Opt.	4.01

The New Streamlined DUAL AUTOMATIC PARKING METERS

AUTOMATIC METERS HAVE REPLACED MANUAL METERS. MANUAL METERS HAVE NEVER REPLACED AUTOMATIC METERS. Automatic meter is more efficient because the human element of operation is removed. The Dual Automatic makes 100% enforcement possible.

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BEST BY TEST IN PRACTICAL USE IN 36 CITIES FROM COAST TO COAST

The Original Parking Meter

11 Patents Issued on Dual Meters, others pending.

Quality Is Always Economy

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Red auxiliary overtime parking signal. . . . Larger signal window—Greater visibility. . . . Renewable Oil Bearing Reservoirs. . . . Pick-proof lock. . . . Audible signal indicating "meter operating."

Meter covered by 11 U. S. Patents granted exclusively to Dual Parking Meter . . . Signal visible from street and sidewalk side . . . Traffic officer can check from opposite side of street . . . Drawn Brass dust housing covered mechanism . . . All windows sealed in grooves and held by metal frames . . . Clogging coin chute causes continuous sounding of audible signal . . . Motorist has no responsibility for setting meter . . . Weight of coin immediately actuates mechanism.

READ THIS RECORD . . . New Dual Automatic installations: Youngstown, Ohio; Zanesville, Ohio; Bristol, Va.; Duluth, Minn.; Marcus Hook, Pa.; Salisbury, Md.; 2nd add'l. installation Shenandoah, Pa.; 4th add'l. Atlantic City, N. J.

DUAL PARKING METER CO.

Commerce Exchange Building — Oklahoma City, Oklahoma

MUD-JACK METHOD

Sunken concrete slab is raised to correct grade by the Mud-Jack Method — preventing breakage of the slab and eliminating reconstruction costs.

Increase the life of concrete slab by the Mud-Jack Method. Write for information about economical maintenance of curb, gutter, and sidewalk slab.

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Draglines · Dumptors · Mud-Jacks
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Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

Paul L. Green, Chairman; George W. Barton, Kenneth W. Mackall, Miller McClintock, Robert A. Mitchell, William R. McConochie, Arnold H. Vey, Joseph L. Wehmeyer, William A. Van Duzer, Thomas J. Seburn, Roger L. Morrison, Otto K. Jelinek, William C. Brandes

Facilitating Traffic and Local Transportation

By FRANK J. McDEVITT
Director of Streets and Sewers, St. Louis, Mo.

THE city of St. Louis, with the approval of the State Public Service Commission, issues route and mileage certificates to all operators of inter- and intra-state buses and trucks. A recent check by traffic inspectors shows that a large percentage of trucks are not following the prescribed routes. A temporary Federal restraining order against enforcement of the State Bus and Truck Act has prevented enforcement, but as this order was recently dissolved, action may be expected in the near future. Large trucks operating at will over city streets which are unsuited for this type of traffic add to congestion, increase maintenance costs, are a menace to public safety, and an obstacle to smooth mass-transportation movement.

Compulsory Motor-Vehicle Inspection

Compulsory motor-vehicle inspection is absolutely necessary in combating traffic accidents. At least 50 per cent of the automobiles in any large city have mechanical defects of some sort which, if not attended to, may cause accidents. The need for frequent brake adjustments is most pronounced. Because of objections from country members of the Legislature, it would be difficult to enact a state law. An effort will be made at the next session of the Legislature to secure passage of an enabling act permitting municipalities to enact local ordinances and charge a fee therefor. Last year Memphis made a remarkable safety record. Compulsory inspection, according to Commissioner Clifford Davis, played an important part in this achievement. Other Mid-Western cities having compulsory inspection are Little Rock, Omaha, Des Moines and Chicago. It is reasonable to suppose that St. Louis, being situated in the center of this group, may serve as a dumping-ground for rejected automobiles, and trucks. Naturally, this constitutes a distinct hazard to life and property. Compulsory inspection has greatly improved the character of workmanship. Only satisfactory repairs will pass, so car owners soon find it advisable to employ competent mechanics. Several years ago a certain city initiated compulsory inspection by rejecting over fifty per cent of the buses. The manager was very indignant, claiming that his equipment was inspected at frequent intervals and kept in perfect condition by highly skilled mechanics. Another inspection witnessed by the manager proved him to be wrong, and after profuse apologies to the city there were numerous changes at the bus garage and shops. When dealing with public safety, it is dangerous to assume too complacent an attitude. Transportation companies should welcome compulsory inspection as a check on their equipment and personnel.

The modern motor car is a marvel of design and workmanship. It possesses high speed with quick starting and stopping characteristics. Unfortunately, street design has not kept pace with the motor car. Sheet asphalt streets predominate in most municipalities, and the smooth surface when wet constitutes a hazard at speeds in excess of 20 miles per hour. A recent report submitted to the American Road Builders' Association reveals that very little has been done by highway departments or municipalities to provide increased friction on road surfaces.

St. Louis is the one outstanding exception in this respect. During the past five years about 100 miles of anti-skid, nonglare street resurfacing has been installed with city forces at a cost for labor and material only of 50 cents per square yard.*

The St. Louis Public Service Co. and the city have an agreement to divide costs equally in resurfacing over abandoned tracks. Last summer the business district of St. Louis was repaved. The old wood blocks were first removed, and a binder course 3 inches thick was laid on the old concrete foundation. This was followed by a 1-inch anti-skid top course.

Increased traffic has occasioned much congestion at automatic signals. During the morning and evening peaks at certain intersections it is quite common to wait for two or three changes. These delays caused much annoyance to motorists and bus passengers. A careful study of conditions showed buses, trucks and motor cars lined up in an irregular manner waiting for a signal change. By painting lanes for a distance of 200 feet on the sides leading up to the intersection, at least 50 per cent more vehicles passed per signal cycle. It was astonishing to see how quickly motorists learned to keep lined up in a given lane.

For years the utilities have spent considerable time and money in efforts to influence legislation, and very little, if any, appeal has been made to the people directly concerned, other than customer stockholders. After all, the citizens of any community like to be taken into consideration, and if they are "sold" on the plan being fostered, they can bring influence to bear in proper quarters.

Securing Coordination

An interesting example took place in St. Louis several years ago when the St. Louis Public Service Co. and Peoples Motorbus Co. combined. It became necessary to work out a satisfactory coordination plan, and secure a permit from the Board of Public Service. Before the latter can take action on matters of this kind it is necessary to hold a public hearing. As a member of the Board of Public Service, I had been present at many public hearings, and I was impressed by the fact that usually conscientious objectors are not familiar with the various matters under discussion. These public hearings seemed to be "putting the cart before the horse." A tentative plan of the suggested coordination was prepared and hung up in my office. Some 70-odd civic, business, religious, and improvement associations were requested to send small committees to my office. Daily meetings were held there, and the coordination plan was carefully explained. They were requested to have their association formally approve the plan, and any suggestions for betterment were welcomed. The Board of Public Service then issued a temporary permit for operation under the proposed coordination plan which could be done without a public hearing. After a period of 90 days it was found advisable to make certain minor changes before extending the temporary permit. These extensions continued for over a year, when it appeared from the absence of all complaints that the coordination plan was entirely satisfactory. Believe it or not, when a public hearing was held by the Board of Public Service, not a soul appeared in protest. This shows what can be done by contacting the public and permitting them to take an active part in the deliberations.

When considering the subject of mass transportation in any large city, one must of necessity include the parking problem. If traffic continues to increase, congestion will eventually cause a slowing-down commensurate with progress during the horse-and-buggy days. These conditions

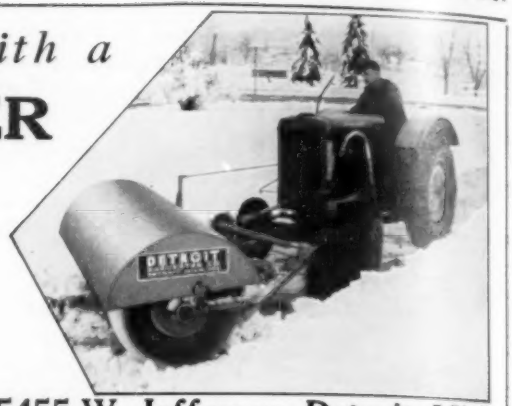
* THE AMERICAN CITY, May, 1938, p. 50.

Solve Sweeping Problems with a

DETROIT SWEEPER

- Fits popular trucks and tractors.
- Easily installed and detached.
- Removes 20,000 sq. yds. of snow in one hour.
- Sweeps streets and areaways free of dirt and debris.

Write for Illustrated Bulletin



DETROIT HARVESTER COMPANY, 5455 W. Jefferson, Detroit, Mich.

IF YOU ARE BUYING A SNOW LOADER THIS FALL

. . . you must investigate the

HAISS "75"

which has demonstrated in the heavy snow belt that IT HAS ability to handle frozen snowpiles —as well as handle 10 yards a minute . . . Write

GEORGE HAISS MANUFACTURING CO., INC.
140th St. & Park Ave., New York, N.Y.

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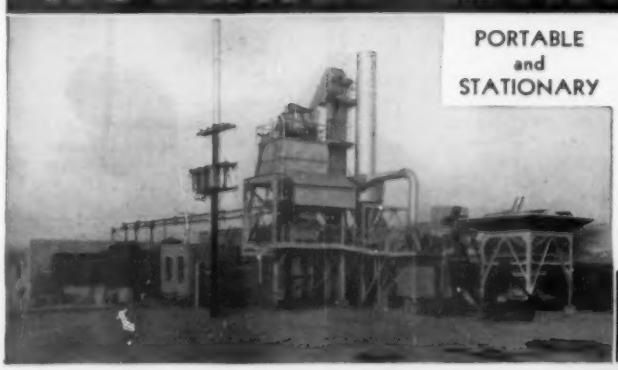

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are at their worst in the business districts. New York City recently eliminated parking on 50 crosstown streets, and, notwithstanding considerable criticism from the merchants, traffic has been speeded up. St. Louis eliminates curb parking in the business district during the morning and evening peaks, but congestion is gradually growing worse. The saturation point is not far off, and unless something drastic is done in the near future, there will be a decentralization of business and lowering of property values; in fact, this has already started, as shown by numerous clusters of high-class shops in the residential section, and surrounding county towns.

To Avoid Congestion and Improve Mass Transportation

During the past 25 years St. Louis has not made any radical changes in parking or traffic regulations. Mass transportation is handled by street cars, buses, and service cars. The patrons of this service, who outnumber the motorist five to one, are entitled to equally rapid means of transportation. Similar conditions prevail in other communities. Just how long the majority will put up with this inconvenience remains to be seen. An encouraging sign has developed in St. Louis recently. The Public Service Co. made application to the State Public Service Commission to abandon a street-car line, consolidating the service with another street-car line. This request was granted after securing approval from the city of St. Louis. In conjunction with this change, the Public Service Co. also made application to the City Board of Public Service to inaugurate a new bus route over part of the abandoned street-car line. Washington Avenue, one of the prominent east-and-west streets in the business district, was already loaded with traffic and under prevailing conditions could not stand another bus line, so it appeared necessary to select some new route through the business district. The merchants protested this change, and I informed them that if they petitioned the Board of Aldermen to pass an ordinance prohibiting parking on Washington Avenue between 3rd Street and 14th Street from 7 A.M. to 6 P.M. and compelling buses and service cars to follow in sequence in lanes adjacent to the curb, I would recommend the issuance of a permit. This petition was circulated and signed by 80 per cent of the merchants.

In order to avoid congestion at street intersections, bus stops and street-car stops should be at the far and near sides respectively. Mass transportation on buses should be greatly enhanced by use of the new Super Twin coaches having a capacity comparable with street cars. New and attractive equipment operating at increased speed over street cars is a leading reason for the popularity and larger revenue. Notwithstanding better parking conditions, however, buses must provide maximum capacity if traffic congestion is to be avoided. Most transportation companies are substituting buses for street cars as rapidly as possible. These changes are usually justified by an improved ratio of operating expenses to operating revenue. What the public and municipalities often fail to realize in making these changes in service is the difficulty in dissipating the physical value of property back of street-railway bonds.

Of course, the real solution of this problem is to install an elevated highway loop around the business district with adequate lines radiating from the loop to the city limits. Instead of ramps for a means of ingress and egress, garages could be installed, with the upper decks connected to the highway. Plenty of property at reasonable prices is available for this purpose. Motorists could use the garage handiest to their place of business, and the congestion occasioned by curb parking would be eliminated.

Buses operating at increased speed on the highway would afford means of rapid transportation. Street cars could also be speeded up owing to reduced traffic on the streets. With less traffic congestion and improved mass transportation, business should improve and property values become stabilized. Elevated highways can be constructed for from $400,000 to $600,000 per mile. Very few municipalities are in shape to finance a project of this sort. By imposing a 10-cent toll it could be made self-liquidating over a period of twenty to thirty years. On this arrangement perhaps funds could be borrowed from the Reconstruction Finance Corporation. As an alternative, private capital might be interested in a similar proposition.

The public reaction to charging tolls would probably be unfavorable, but not when all the facts are considered. Running at high speed between home and business with no stops for street intersections, the motorist would save on time, gas, oil, tires and maintenance, which would offset, in large measure, the 10-cent toll charge. Incidentally, users of mass transportation might be willing to pay an increased fare because of the increased speed between home and business. Elevated highways are also of prime importance from the standpoint of public safety, because pedestrians and motor cars are placed on different planes, and street intersections are eliminated.

New York City has an elevated highway along the Hudson, and expansion is being actively considered. There are other highways in Jersey which reduce the time between the Newark Airport and New York. Chicago has approved an elevated highway program, and it is rumored that the first section will be started this year. Washington, San Francisco, and several other cities are considering the idea.

The principal objection to elevated highways seems to be the consequential damages to abutting property. The economic value of eliminating street intersections, also placing motor vehicles and pedestrians on different planes, should, in large measure, offset this feature.

Transportation companies are losing money every day through illegal carriers. Thousands of people are carried to and from their duties each day by fellow workmen, but it is difficult to make a case in court unless evidence can be produced to show that money changed hands. Just what effective method can be used to combat this situation is a problem. In St. Louis the service cars carry about 15,000 people in and out of the business district each day. The fare charged is equivalent to the bus fare less transfer privileges, and taxes are nominal. If the Public Service Co. had this patronage, representing the cream of the business, it would be of material assistance in eventually terminating a receivership.

Considering all the factors involved in better transportation and improved traffic, it is absolutely essential to have harmony and close cooperation between city officials and transportation executives. Settle things on their merits, and not on the basis of political expediency. Don't overlook the public, who have a vital interest. Always take the public into your confidence, and the reaction is bound to be favorable to a good prospect.

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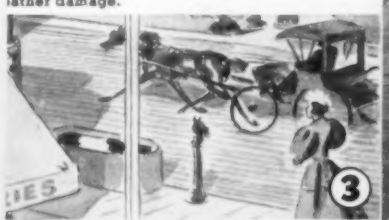

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FOR NEW CONSTRUCTION OR RESURFACE JOBS

Improving Municipal Administration

Current Items from the Public Administration Clearing House

City Managers Adopt New Code of Ethics

ADOPTION of a revised code of ethics for heads of the 457 council-manager cities throughout the country has been announced by the International City Managers' Association. The new code,

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serve under these principles as a city manager to the advantage of the community. It declares that "the city manager keeps the community informed on municipal affairs but keeps himself in the background by emphasizing the importance of the facts."

States Share with Local Governments Motor-Vehicle and Gasoline Taxes

WITH state gasoline and motor-vehicle license taxes totaling more than one billion dollars in 1937, states now share about $186,000,000 of this revenue with local governments, a survey by the American Municipal Association shows. The survey points out that a high percentage of cars is owned by urban residents, that about 93 per cent of the traffic on city streets is composed of urban-owned cars.

The gasoline tax, which last year yielded more than $700,000,000, more than 25 per cent of all state tax revenue, is shared in 25 states. Local governments, mainly counties, received approximately $142,000,000, and from this amount cities in 16 states obtained appropriations directly from their state gasoline tax funds, totaling more than $34,000,000.

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Interference Ordinances

ORDINANCES against radio interference, a novelty on city statute books a decade ago, are now common in small and large cities alike.

Among small cities recently prohibiting use of various electrical appliances that cause interference with broadcasts are Huron, S. Dak.; Pampa, Texas; Ventura, Calif.; and Minot, N. Dak. City electrical inspectors in both Huron and Minot use radio interference locators or finders in tracing down complaints. New York City, Los Angeles, Calif., and Portland, Ore., are among the larger cities that adopted such ordinances several years ago.

Generally, the municipal ordinances require that no apparatus or equipment may be operated so as to interfere with radio reception, and many of them specify that electrical power will be cut off when the ordinance is not complied with. Portland, Ore., puts the necessary use of such machines as X-ray and violet-ray on a permit basis. Other cities prohibit their use entirely during certain hours. In most cities the local power companies work with the city in eliminating interference from utility lines and transformers.

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MORE than 1,500 properties acquired by the city of Boston through foreclosure of tax liens are managed by a new real estate division in the Public Buildings Department to the advantage of the city pocketbook, the Municipal Finance Officers' Association reports.

Boston is one of a number of cities in the country that operate municipal real estate departments to handle tax-delinquent property turned over to the city. Prominent among others are Portland, Ore., Milwaukee, Wis., and Rochester, N. Y.

Representing $812,965 in back taxes, interest and other costs, the Boston properties were formerly entrusted to the city collector. Resale under this system was slow because the City Council had to approve each sale. A 1938 Massachusetts statute vested broad powers over tax title properties in the city's mayor or a custodian named by him. Since the statute became effective, 60 buildings have been rented; dilapidated structures have been demolished, and many of the vacant properties have been made into parks and playgrounds. Others are retained for the city's future use.

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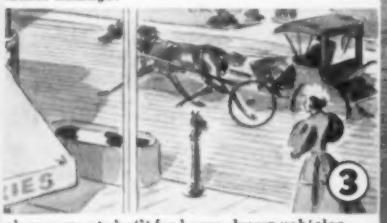

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Emphasizing that the city manager "is in no sense a political leader," the code points out it is the duty of the manager "to provide the council with information and advice without encouraging passive acceptance of his recommendations." It also states that the council, as the elected representative of the people, "is entitled to the credit for the fulfillment of municipal policies." Under the code the council would also defend policies which may be criticized.

"The city manager, in order to preserve his integrity as a professional administrator, resists any encroachment on his control of personnel, insists on the exercise of his own judgment in accomplishing council policies, and deals frankly with the council as a unit rather than secretly with its individual members." In his control of city personnel, the code declares, the manager handles all questions on a basis of merit. "Political, religious, and racial considerations carry no weight in appointment, salary increases, promotions, and discipline in the municipal service."

The code provides that no city manager may seek or accept a position unless he is fully in accord with the principles of council-manager government and unless he is confident that he is qualified to serve under these principles as a city manager to the advantage of the community. It declares that "the city manager keeps the community informed on municipal affairs but keeps himself in the background by emphasizing the importance of the facts."

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Although only 11 states shared the proceeds of motor-vehicle license taxes with local governments, approximately the same proportion of this money was distributed to localities last year, the survey shows. From a total of about $313,000,000 collected for license fees, the localities of the 11 states received some $43,000,000. This appropriation to local governments included about $15,000,000 made directly to cities.

Alabama, Illinois, Indiana and Ohio shared the largest proportion of their gasoline-tax revenues by returning approximately one-half of these state tax receipts to local governments. The figures show that Alabama collected $13,000,000 and shared $6,000,000 in 1937, and Illinois collected $37,000,000 and shared $18,000,000 with the local governments. Indiana collected $23,000,000 and shared $12,000,000, and Ohio collected $44,000,000 and shared $25,000,000.

States returning the highest percentages of their motor-vehicle license fees to local governments were Colorado, Nebraska, North Dakota and South Dakota. All these states shared approximately half of their receipts from these taxes.

In the states appropriating gasoline or motor-vehicle tax receipts to city governments, only a few municipalities benefited, according to the survey. For example, several states shared these tax revenues with only one city.

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Letters to the Editor

Knoxville Foresees Double Demand for Its TVA Power

To the Editor of THE AMERICAN CITY:

AFTER five years of continuous effort on the part of the citizens of Knoxville, Tenn., they have at last become the owners of the light and power distribution system—this being the eighth city in size in the United States to adopt municipal ownership of light and power.

On September 1, 1938, Mayor W. W. Mynatt handed the Tennessee Public Service Co. a check for $5,329,041.41 and the deeds to the entire property of the company in the city of Knoxville, Knox County, and the distribution lines in three adjoining counties became the property of the city. At midnight, September 2, TVA power from the Norris Dam flowed into the municipal lines. Construction ceased on the competitive distribution system—only one contract amounting to $172,000 having been finished. The first price asked for the property was approximately $9,000,000. The city sold its $6,000,000 revenue bonds at 3.39 per cent interest rate, the lowest rate of any bonds ever selling in Knoxville.

Our engineering firm, which has been at work 5½ years at Knoxville, was delegated as acting managers of the municipal property until such time as a utility board can be authorized by the Legislature and created.

The new rates are 41 per cent under the former rates, and save to the citizens approximately $3,000 per day. Applications for service and appliances indicate that the electrical load placed on the new system will double within a year. The city pays about 4 mills per kwl.

R. E. MCDONNELL,
Burns & McDonnell Engineering Co.,
Kansas City, Mo.

Trailer Camps in Detroit

To the Editor of THE AMERICAN CITY:

Following my letter or article which you published in your September issue, I write again to give you the result of a court case in Detroit affecting the problem of trailers and trailer camps in this vicinity.

The city of Detroit, after difficulties had been experienced by the city authorities, passed an ordinance providing that trailer camps within the city limits must be licensed, and that each trailer must pay a license fee of $10 to the city. We have a trailer population in several camps of about 3,000 individuals.

Because the ordinance required that each trailer remain not longer than ninety days in a given location, the issue was joined as between movable trailers mounted on wheels, and trailers in camps with wheels removed because the owners or occupants intend to remain for a considerable period, perhaps indefinitely. These trailers, according to the city authorities, become habitations subject to regulations involving health, fire hazards, sanitation, public school services to children, etc., and especially a fair measurement of the costs for rendering these services.

Under these conditions, the national companies which manufacture trailers sent their attorneys to Detroit, secured restraining orders in the Circuit Court of Wayne County and challenged the right of the city thus to regulate and tax trailers in numbers. It was charged that the ordinance practically was confiscatory, and, with no alternative offered, the manufacturers have undertaken to break down the ordinance and substantially nullify its enforcement.

As the case has recently been heard in court, with witnesses examined and evidence offered, the decision of Judge Guy A. Miller has been rendered, sustaining the validity of the ordinance and the right of the city reasonably to regulate and control trailer camps. In this process the kind of conditions recited in my letter, published in your September issue, were a part of the evidence. I was on the witness stand between one and two hours, describing in detail the problem of school services just outside the city of Detroit.

Since Judge Miller has decided in favor of the ordinance, the manufacturers now are appealing to the Supreme Court of Michigan.

W. P. LOVETT,
Executive Secretary, Detroit Citizens League.

How Handle Tax-Delinquent Land?

To the Editor of THE AMERICAN CITY:

The excellent article* on "Land Reserves for American Cities," by Harold S. Buttenheim and Philip H. Cornick, prompts this letter. Apparently many cities face a difficult situation today, resulting from non-payment of taxes and the abandonment of much real estate, with consequently diminished public revenues. With no desire to pose as an expert, I wonder if something along these lines would not help in the present situation. My suggestion is:

Secure legislation to enable municipalities to take title to real estate on which taxes remain unpaid, allowing a reasonable period for redemption, after which let the title become absolute.

Permit no sales of such properties, but authorize their leasing at full ground rent, making leases for long or short periods, with the proviso that revision of rentals shall be made, say, at five-year intervals.

Exempt from taxation all improvements and buildings on such lands, thereby encouraging building, giving employment and doing something to meet housing needs. If the municipality receives full ground rent, why discourage building? Further, if we exempt improvements from taxation, it will make it easier to lease at adequate rentals.

Has such a program been tried? What objections are there to it? Would it not aid in making such properties productive of public revenue, properties which today—and probably tomorrow—yield nothing? Would owners who forfeit holdings be any worse off than under the present system?

I do not profess to know much about these questions and would welcome enlightenment and discussion, through your columns or otherwise.

GILBERT M. TUCKER.
Capitol Station,
Albany, N. Y.

* Abstracted in THE AMERICAN CITY for July, 1938, pages 69-73. Published in full in the *Journal of Land and Public Utility Economics* for August, 1938; reprints available at 10 cents each from THE AMERICAN CITY, 470 Fourth Avenue, New York.

Land Acquisition Handicapped by Overlapping Taxation

To the Editor of THE AMERICAN CITY:

I have just read with great interest the article by Harold S. Buttenheim and Philip H. Cornick on "Land Reserves for American Cities" as published in the *Journal of Land and Public Utility Economics* and abstracted in THE AMERICAN CITY for July.

There is one point which this article does not touch on and which I believe is very important, particularly in New York State.

The laws of New York State require municipalities to pay taxes on property owned by the municipalities outside their limits to those other units of government in which the property is located. The courts have held that when the property is purchased by a municipality for delinquent taxes, the municipality must pay taxes to the overlapping units of government unless the property is used strictly for municipal purposes. For this reason the municipalities of New York State have not developed—and, I fear, would not develop—urban land reserves such as you advocate. Before we can make any headway in the adoption of your reform, it will be necessary to relieve the municipalities of taxation either inside or outside their limits by overlapping units of government.

WILLIAM P. CAPES,
Executive Secretary, Conference of Mayors and Other Municipal Officials of the State of New York.

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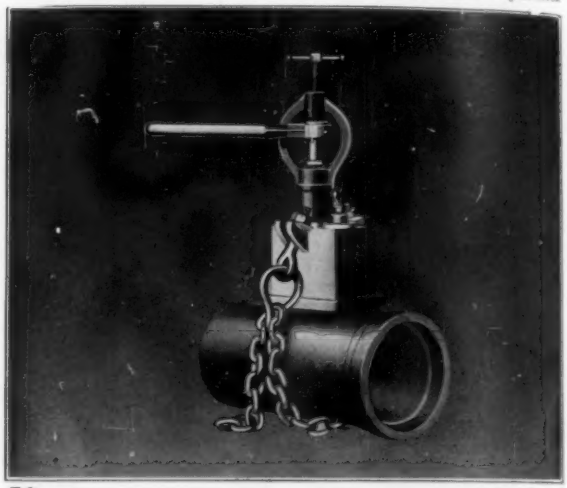

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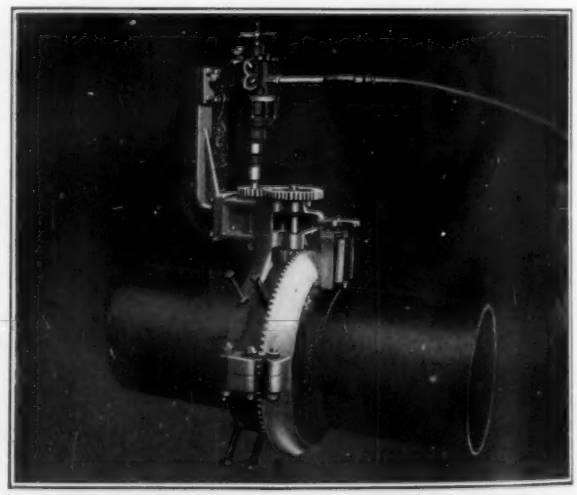

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

Residential Areas—Bees

CALIFORNIA.—*Ex parte Ellis*, 81 Pac. 2d. 911 (Supreme Court, July 26, 1938).—An ordinance of the city of Los Angeles prohibiting the keeping of bees within the city except in designated areas is valid as enforced in a district devoted primarily to residence purposes, since bees may become a nuisance in residential areas.

EDITOR'S NOTE.—See on this subject a ruling in Baltimore, given in our Notes for August, 1931.

Public Housing—Eminent Domain

FLORIDA.—*Marvin v. Housing Authority of Jacksonville*, 183 So. 145 (Supreme Court, July 27, 1938).—As authorized by a state statute, and in order to prosecute projects for slum clearance and low-cost housing, the Jacksonville Housing Authority is proceeding to acquire land by eminent domain for these purposes. It is also obtaining a loan from the United States, issuing bonds for that purpose, and for sale for investors, and making a contract with the city for its services to aid in the work. These transactions are challenged by the plaintiff, a taxpayer, who also has an interest in the land selected.

And this Court holds that slum clearance and low-cost housing is a public purpose; that the bonds are legal obligations of the Authority and not of the city, the county or the state; that the bonds and the property of the Authority are rightfully exempted from taxation; that the contract with the city is valid.*

Public Housing—Slum Clearance—Eminent Domain

LOUISIANA.—*State ex rel. Porterie, Attorney General, v. Housing Authority of New Orleans*, 182 So. 725 (Supreme Court, July 8, 1938).—The purpose of the Housing Authority Act of the state of Louisiana, as stated in that Act, is to create in cities having a population of 20,000 or over public corporations to engage in slum clearance, to provide dwelling accommodations for families of low incomes; to authorize them to acquire property by purchase, gift or eminent domain; to authorize such corporations to borrow money. The property of such corporations shall be tax-exempt, and their bonds legal investments. No Housing Authority shall exercise any of its powers in any city until that city shall declare that there is a need that such Authority shall function there. The Council shall declare that unsanitary or unsafe inhabited dwelling accommodations exist in the city and that there is a lack of safe or sanitary dwelling accommodations in the city available to families of low income at rentals they can afford.

In determining whether dwelling accommodations are unsafe or unsanitary, the City Council shall take into consideration the degree of overcrowding, the percentage of land covered, the light, air, space and access available to the inhabitants of such dwellings, the size and arrangement of rooms, the sanitary facilities, and the extent to which conditions exist in such buildings which endanger life and property by fire and other causes.

The Council of the city of New Orleans adopted a resolution declaring that there was need in the city for a Housing Authority, and the Mayor appointed the Commissioners to exercise its powers.

The Act declares that the Authority shall be a public body with power to carry out housing projects, including the power of eminent domain. The Attorney General of the state in this action challenges the constitutionality of this Act.

The Act sets forth that in the cities of the state of 20,000 or over there are slums and unsanitary conditions causing disease, crime and economic loss. This recital, although most persuasive, is not conclusive on this Court; but it appears in evidence that there have been investigations showing this to be true.

And, the purposes of the Authority being public, the power of eminent domain, to aid it in carrying them out, may legally be bestowed upon it.

The state constitution forbids the investment of the property or funds of the state with individuals, or corporations, public or private; but, clearly, this is not intended to prevent officers of the state from using its property for a public purpose such as this. The framers of the Constitution did not intend to debar municipal corporations from using public funds to protect the health, morals and safety of its inhabitants.

The city of New Orleans is planning to close certain streets in the city within the area of the housing project and to sell the land comprised within them to the Authority; but, as this will not be done until the Authority has acquired all the property within that area, this is entirely legal, the land in such streets being no longer necessary for the public use to which it was formerly destined. The closing or selling of such streets rests within the sound discretion of the city.

And it is entirely proper that the bonds of the Authority should be tax-exempt, and that financial institutions should be allowed to invest in them.

And it is entirely legal that neither the state nor the municipality should be liable for the debts of the Authority.

EDITOR'S NOTE.—For additional cases on public housing see our Notes for October, 1938.

Permit—Delay in Issuing Permit Pending Change

NEW YORK.—*Fieldston Property Owners Association, Inc., v. Hull*, Supreme Court, Bronx County, reported in *New York Law Journal*, June 29, 1938, p. 3129.—The plaintiff made application to the City Planning Commission of New York City to establish a new "G" area district which if adopted will confine the buildings to single-family houses within the area so zoned. On June 6, 1938, the Commission adopted a resolution for the establishment of such a district, and filed it in the office of the Secretary of the Board of Estimate (the legislative body of the city in such matters). It becomes effective 30 days thereafter unless modified or disapproved of by a three-fourths vote of the Board. If it does become effective, the "G" area restrictions cannot be applied to any particular section of the city unless a ten-days notice of hearing is advertised; and the resolution of the City Planning Commission applying the "G" area restrictions to a particular locality must then be referred to the Board of Estimate and may become effective thirty days thereafter.

The defendants acquired title to the property on June 6, 1938. It is contiguous to, but not within, the Fieldston development. The property is subject to the "F" zone restrictions which permit the construction of apartment houses. On June 6, 1938, the defendant filed plans for the construction of a multiple dwelling on the property with the Department of Buildings. The following day he contracted for the excavation work, and it was begun on June 8, 1938.

The plaintiff is asking for an injunction to prevent the defendant from constructing this building; and the Court denies it, failing to find any reason so to prevent the defendant from improving his property in conformity with the present zoning restrictions, or to delay him from doing so for the purpose of giving plaintiff time to endeavor to have defendant's property placed in a zone which may prevent him from doing so, work having already been begun.

EDITOR'S NOTE.—See on this subject our Notes for October, 1938.

An Index to Zoning and Planning Notes in each edition of The Municipal Index covers the decisions presented in this department during the most recent volume of The American City.

* See also page 78 of the September, 1938, issue of THE AMERICAN CITY.

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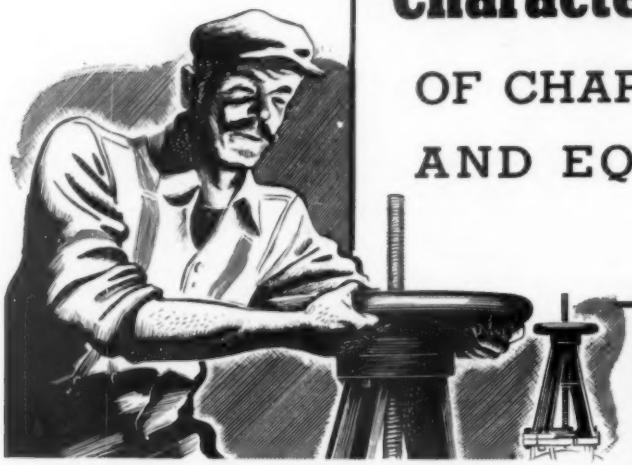

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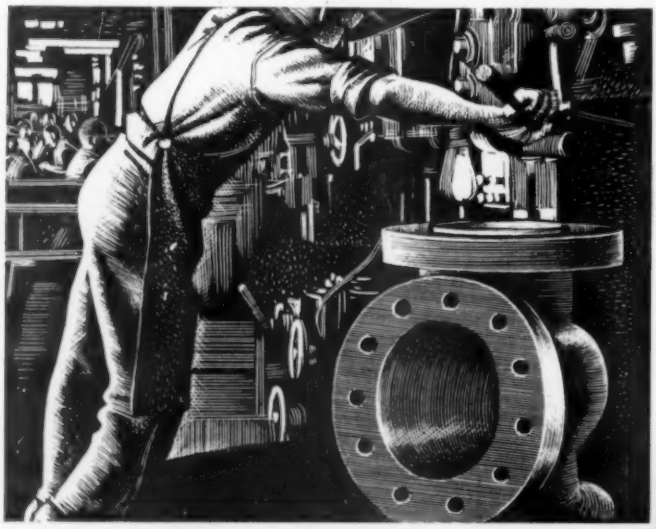

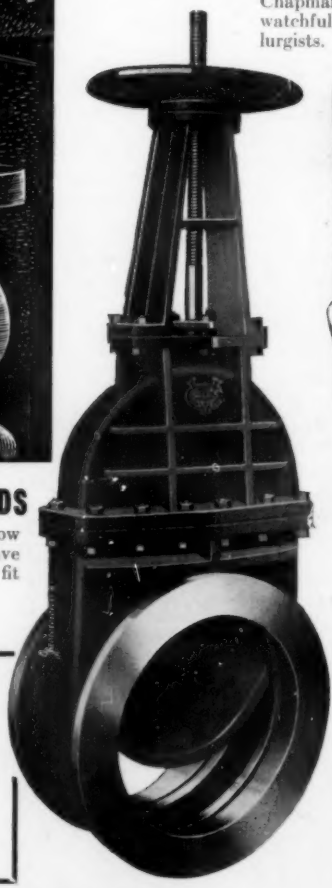

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The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

Accidents

Garbage collection by city held governmental function, rendering city immune from liability for injury to pedestrian who fell through trap-door in store left open by city employee (Ohio Court of Appeals, Sandusky County: *Imes v. City of Fremont*, 16 N. E. 2d, 584).

Town held not liable for drowning of trespassing boy while playing on raft on municipal reservoir (Iowa Supreme Court: *Harriman v. Incorporated Town of Afton*, 281 N. W. 183).

Municipal immunity from liability for injuries caused in discharging governmental functions held not to extend to injury to visitor to pay patient in municipal hospital (New York Supreme Court, Trial Term: *Engels v. City of New York*, 6 N. Y. Supp. 2d, 436).

Complaint against city for injury to motorist on foggy night, attributed to negligence in permitting railroad company to maintain unlighted signal device in middle of street at crossing and in city maintaining deceptive painted traffic line in street that passed through signal, held to state ground for recovering damages (California District Court of Appeals: *Sandstoe v. Atchison, Topeka & Santa Fe Ry. Co.*, 82 Pac. 2d, 216).

Under California statute, city but not policeman held liable for his negligent driving of emergency vehicle on wrong side of street, at excessive speed and without sounding timely warning, resulting in injury to pedestrian at street intersection (California District Court of Appeal: *Eddy v. City of Los Angeles*, 82 Pac. 2d, 25).

City held liable for injury to laborer due to electric shock while assisting in setting pole near old line (Texas Court Civil Appeals: *City of Timpson v. Powers*, 119 S. W. 2d, 145).

City held liable for injuries to motorists when car struck dead-end curb and pole at a dangerous "bottle-neck" street intersection (California District Court of Appeal: *Arellano v. City of Burbank*, 81 Pac. 2d, 599).

City held not liable for injury to boy run over by automobile in street in running away from place where children were playing under spray maintained on parkway on side of street (Kansas Supreme Court: *Rose v. City of Wichita*, 80 Pac. 2d, 1078).

City held not liable for death of motorist who backed into pit in night-time after accidentally driving off highway onto trail leading to municipal canal (Kansas Supreme Court: *Carson v. City of Wichita*, 80 Pac. 2d, 1114).

Appropriations

Item in general appropriation ordinance, "Fire department account, $29,535," under heading, "General Fund," held sufficiently specific (South Dakota Supreme Court: *Calmenson Clothing Co. v. Kruger*, 281 N. W. 203).

Attorneys

Attorney chosen as city solicitor for one year, without charter provision for such office, held not entitled to hold over beyond that time as an officer whose term had expired but whose successor was not elected (Maine Supreme Judicial Court: *Dale v. City of Bath*, 1 Atl. 2d, 181).

Bond Issues

Where bonds for less than estimated cost of sewer were voted on assumption PWA aid would be secured, second election to authorize additional issue held proper where no grant was made by PWA (Missouri Supreme Court: *Bull v. McQuie*, 119 S. W. 2d, 204).

Proposal to issue bonds in excess of constitutional debt limit held not defensible on ground that bonds would be issued only as funds were needed and that in meantime retirement of other bonds would leave all issued bonds within debt limit (New York Supreme Court, Clinton County: *New York State Electric & Gas Corp. v. City of Plattsburgh*, 6 N. Y. Supp. 2d, 419).

Business Regulations

Requirement for sale and delivery of solid fuel, excepting certain types, in quantities of one ton or multiples thereof upheld (New York Magistrate's Court, Borough of Brooklyn: *People v. Capitol Fuels of Queens*, 6 N. Y. Supp. 2d, 243).

Civil Service

Policeman discharged on conviction of murder held not entitled to reinstatement on being pardoned (Georgia Supreme Court: *Morris v. Hartsfield*, 197 S. E. 251).

Policeman asleep on duty held guilty of misconduct justifying his dismissal (Rhode Island Supreme Court: *Kelley v. City Council of City of Cranston*, 1 Atl. 2d, 185).

Contracts

Taxpayer held entitled to sue on behalf of city to recover money paid for oil bought from company of which councilman was stockholder and office manager (California District Court of Appeal: *Miller v. City of Martinez*, 82 Pac. 2d, 519).

Depositories

National bank held not empowered to pledge its assets as security for municipal deposits, and its receiver's payments to city in excess of city's share of assets, prorated with other creditors, held an illegal preference (United States District Court, Southern District of New York: *Douney v. City of Yonkers*, 23 Fed. Supp. 1018).

Elections

Special election authorizing establishment of public utility district held not vitiated by omission to post notice of election in polling places as provided by statute, the electorate being informed through other sources (Washington Supreme Court: *Vickers v. Schultz*, 81 Pac. 2d, 808).

Election on proposal to erect electric plant held vitiated by failure to comply with statutory requirements concerning preservation of ballots, by delay in canvassing vote, etc. (Iowa Supreme Court: Steeves v. Town of New Market, 281 N. W. 162).

Pensions

Under statute authorizing monthly allowances to city employees disabled by injury or disease in the course of duty, governing body's finding that employee was not entitled to allowance held conclusive in the absence of showing that the action was arbitrary and capricious (Kansas Supreme Court: *Godlove v. City of Topeka*, 81 Pac. 2d, 39).

Police Measures

Ordinance forbidding uninvited visits to private residences by peddlers, etc., upheld (Louisiana Supreme Court: *City of Shreveport v. Cunningham*, 182 So. 649).

Ordinance requiring permit for house-to-house canvassing upheld and held to cover solicitation of contributions to religious sect (New Jersey Supreme Court: *Town of Irvington v. Schneider*, 200 Atl. 799).

Public Utilities

City held not subject to regulation by state corporation commission as to water service furnished consumers within or beyond the city limits (Arizona Supreme Court: *City of Phoenix v. Wright*, 80 Pac. 2d, 390).

Provision in gas franchise for reduction of rates to conform to any reduction of rates of same company in adjacent city in adjoining state held invalid, especially where the validity of a compulsory lowering of rates in the adjacent city was the subject of undetermined litigation (United States Circuit Court of Appeals, Fifth Circuit: *Arkansas Louisiana Gas Co. v. City of Texarkana, Tex.*, 97 Fed. 2d, 5).

Sewers

City held properly enjoined from connecting sewer outlet with a drainage district's ditch without first securing valid contract therefor with county authorities, as required by statute (Springfield, Mo., Court of Appeals: *Thompson v. City of Malden*, 118 S. W. 2d, 1059).

Special Assessments

City held not precluded from assessing abutting property for street improvement benefits because state paid portion of cost not covered by assessment (Alabama Supreme Court: *Chenault v. City of Russellville*, 181 So. 795).

Statutory provision that on default in payment of special assessment installment maturities of future installments "may" be accelerated held not to automatically fix the date of such default as the time when limitations would commence to run against right to recover on future installments, where acceleration option is not exercised (Kentucky Court of Appeals: *City of Dawson Springs v. Hamby*, 117 S. W. 2d, 204).

Streets

Owner of fee title to land occupied by street held entitled without municipal permit to maintain water pipe under street if he did not interfere with public use of surface and subsurface of street, and municipality held empowered to grant revocable permit for maintenance of pipe by non-abutting owner (Washington Supreme Court: *Lanham v. Forney*, 81 Pac. 2d, 777).

Municipal authorities' determination of necessity for repaving street held conclusive on courts unless based on fraud or caprice (Kansas Supreme Court: *Smith v. Kansas City*, 80 Pac. 2d, 1068).

Municipally owned property held subject to special assessment for street improvements, under Oklahoma statutes (United States Circuit Court of Appeals, Tenth Circuit: *Dwyer v. Le Flore County*, 97 Fed. 2d, 823).

City held not liable for subsidence of ground under abutter's building when city excavated in street for sewer if ground would not have subsided except for weight of building (Rhode Island Supreme Court: *Welsh Manufacturing Co. v. Fitzpatrick*, 200 Atl. 981).

Paving assessments levied against abutting property on square-foot basis, under statute permitting that or frontage basis, upheld (Louisiana Supreme Court: *Hagmann v. City of New Orleans*, 182 So. 753).

Taxation

Under Alabama statutes, municipal taxes held separable from county and state taxes for purposes of tax sales, redemption, etc. (Alabama Supreme Court: *City of Opp v. Brogden*, 181 So. 752).

Taxpayers held not entitled to enjoin collection of taxes on ground of discrimination against realty in favor of personalty, timely protest not having been made, no tender of amounts fairly due having been made, and no particular tracts being identified as excessively taxed (Georgia Supreme Court: *Mayor and Aldermen of Savannah v. Fawcett*, 197 S. E. 253).

Action at law, not suit in equity, held proper means of seeking recovery by borough of percentage of cemetery association's receipts agreed to be paid borough, in compensation for loss of tax revenues, in consideration of borough licensing maintenance of cemetery (New Jersey Court of Chancery: *Borough of Kenilworth v. Graceland Memorial Park Assn.*, 199 Atl. 716).

Workmen's Compensation

Firemen's dependent family held not entitled to workmen's compensation award for his death when shot by his captain, there being no proof that the shooting arose out of circumstances connected with the fireman's employment (Michigan Supreme Court: *Slusher v. Fire Department, City of Pontiac*, 280 N. W. 78).

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During November we hope you will remember to mention THE AMERICAN CITY.

Municipal and Civic Publications

Prices quoted do not include postage, unless so stated

Street Cleaning

Street Cleaning Practice.—By the Committee on Street Cleaning, American Public Works Association, Chicago, Ill., Chairman, John S. Flockhart, Principal Assistant Engineer, Bureau of Street Cleaning, Newark, N. J.—American Public Works Association, Chicago, Ill. 1938. *XIII + 407 pp.*, $4.00 *from the Association.*

This volume, in preparation for more than two years, is a comprehensive and authoritative treatise on its subject. The various chapters discuss local conditions affecting street cleaning; street cleaning methods and equipment; the planning of cleaning operations; ways of reducing the amount of street litter; catch-basin and inlet cleaning; snow removal and the treatment of icy pavements; European practices; the financing and internal organization of a street cleaning department and the selection of its personnel, the management of equipment, and street cleaning records, costs and budgets. Three appendices contain street cleaning ordinances, a tabulation of street cleaning practices in ninety-four American cities, and a selected bibliography on street cleaning.

Sewage Treatment

In a pamphlet entitled "Semi-Plant Scale Studies of Chemical Precipitation of Sewage," the Texas Engineering Experimental Station reports the results of the second half of a study of chemical precipitation of Dallas sewage. The first part of the study consisted of the preliminary laboratory experiments made to determine methods and procedures of treatment necessary to produce satisfactory coagulation. In the second phase, laboratory treatments were applied to semi-plant scale operation under actual conditions.

Results of sewage coagulated with ferric chloride are compared with results of sewage treated in standard Imhoff tanks, the effluent of the latter being subjected to three standard methods of secondary treatment—sprinkling filter, sand filter, and Hays contact aerator. 40 pp. (Apply to Texas Engineering Experiment Station, College Station, Texas.)

The Eighth Annual Report of the Treatment Works Division of Grand Rapids, Mich., is a remarkably complete one. Of particular note are the detailed data on operation, and the very thorough stream-pollution study of the Grand River. Operation data include the analytical records, as well as individual annual averages and the accumulated plant averages for the six years that the plant has been in operation. The report contains, also, statements of plant investment and operation costs, uses and cost of electric energy, and the annual financial report, showing the detail of plant costs. 60 multigraphed pp. (Apply to Treatment Works Div., Dept. of Public Service, Grand Rapids, Mich.)

Ventilation of Manholes

"Effect of Wind Velocity on Natural Ventilation" reports results of the third phase of a study of the ventilation of manholes. Previous reports showed the relation of amount of ventilation to number and area of openings in the manhole cover. Results of this investigation demonstrate the amount of increase in ventilation with increase in wind velocity. 5 pp. (Apply to Bureau of Mines, U. S. Dept. of the Interior, Washington, D. C.)

Steel Construction

The Annual Report of the American Institute of Steel Construction contains reports of the President, Executive Vice-President, Secretary, Treasurer, Bureau of Public Relations, Chief Engineer, and Director of Statistics (with statistical charts). Included is a list of cities, states and other authorities which have adopted or permit the A.I.S.C. standard specifications of 18,000- or 20-000-pound unit stress. 79 pp. (Apply to the American Institute of Steel Construction, Inc., 200 Madison Ave., New York.)

Economic and Social Progress

Roads to a New America.—By David Cushman Coyle. Little, Brown and Co., Boston, Mass. 1938. 390 *pp. including index.* $2.75 *from* The American City.

Dedicated "to the oncoming generation, to whom our generation owes an explanation," this first "full length" book by David Cushman Coyle meets its challenge in a stimulating and constructive manner. Readers familiar with Mr. Coyle's series of pocket-size books—"Brass Tacks," "Uncommon Sense," "Waste," "Age Without Fear," and "Why Pay Taxes"—will find in "Roads to a New America" some familiar material and much that is new and provocative. The chapter headings include, among others: Freedom, Conquered America, The Soil, The TVA Yardstick, Money, Debts, Balancing the Budget, Geographic Balance, Methods of Distributing Income, Old Age Pensions, Taxation as a Tool of Democracy, Public Health, Forests, Schools, and The Six Economic Systems.

Most of the chapter on Public Health forms the article published on pages 83 and 85 of this issue of The American City. A chapter on The Blocking of Progress ends with the following paragraph:

"We are like a horse tied to a stake and also tangled in his rope. The tangle is the economic law, the rope is the technical limit of our productive power. If we can untangle our feet, and keep them untangled, we can graze to the full length of our tether. Since that would mean an addition to our national income of nearly 100 per cent, it is worth working for."

Planning

"Good planning is good business" is the theme of a Federal Housing Administration bulletin, "Planning Profitable Neighborhoods,"* which outlines principles and standards of good neighborhood development for the small developer.

The first part of the bulletin discusses the advantages to developer, investor and home owner of the proper consideration of the following factors in planning subdivisions as neighborhoods: location, neighborhood character, design, utilities, houses, marketing, zoning and restrictions, and technical service. The second part outlines briefly, with illustrative examples, "principles of land subdivision that make neighborhoods more desirable." They relate generally to: street layout; commercial, school and recreational areas; individual lot size, shape and orientation. The third part consists of examples of revised layouts of plans submitted to the Land Planning Section of the Technical Division of the Federal Housing Administration.

Included, also, are a brief statement of FHA procedure, with a summary of the exhibitions required from applicants for mortgage insurance, and a list of local FHA offices in the country. 36 pp. 20c. (Apply to Government Printing Office, Washington, D. C.)

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* See also page 60 of this issue.

Municipal Insurance

"Municipal Insurance Costs and Practices in Twenty-Two Wisconsin Municipalities" treats of the following types of insurance: fire and other property damage insurance on building and contents, surety bonds for municipal officials and employees, public liability and theft insurance carried on municipally owned or operated equipment, robbery and burglary insurance on money and securities. The general conclusion is reached that insurance premium rates charged municipal risks are not equitable. Suggestions are made for reducing the costs involved in carrying insurance. For individual Wisconsin municipalities, the following methods are suggested: (1) improved practices in placing insurance, (2) rate reductions, (3) self-insurance, (4) partial insurance, (5) no insurance, (6) insuring with the state fire fund. The report also recommends collective action on the part of Wisconsin municipalities to secure preferential insurance rates for municipal property. 12 pp. $1.00. (Apply to The American Municipal Assn., 1313 E. 60th St., Chicago, Ill.)

Water Works

Manual of Water Works Accounting.—Prepared by the Municipal Finance Officers Association and the American Water Works Association, and published jointly by them in Chicago and New York respectively. 1938. *XXI + 483 pp.* $4.00 *from* The American City.

While this volume is not guaranteed to make a C.P.A. out of any water-works man, it will go a long way toward making an effective water department accountant out of any individual who has had any bookkeeping experience and some knowledge of water-works operation. The twenty chapters cover very effectively accounting organization, the various books of entry, customer accounting procedure up to the time of billing, followed by customer billing and bookkeeping, and then a section devoted to accounting for expenditures in water works, another section devoted to accounting for assets, liabilities and net worth, a very important matter when rates are being considered. The final chapters are devoted to the preparation of financial statements and budgeting. There are three effective appendices, one giving a glossary of terms used in water-works practice, the second a bibliography, and the third a classification of accounts for two classes of utilities. Of particular interest are the nine charts which show in visible form certain operations, sources and distributions of items affecting accounting. A study of these alone is well worth the attention of any water-works man.

Water Supply

Elements of Water Supply Engineering.—By Earle Lytton Waterman, Professor of Sanitary Engineering, State University of Iowa. Second edition. John Wiley & Sons, Inc., New York. 1938. *XVII + 329 pp.* $3.50 *from* The American City.

The second edition of this book, designed primarily for college students in sanitary engineering, contains new material on mechanical equipment for water-treatment plants, the use of activated carbon for the control of tastes and odors, the Hardy Cross method of analyzing the flow in distribution pipe networks, and the Proctor method for the design and construction of rolled-fill earthen dams. The book is excellent for those municipal officials who have some general supervision over municipal water supplies. The various chapters discuss the requirements of municipal water supplies; quantity and quality of water; the various tests to determine the quality of water; sources of water; rainfall; ground waters and their collection; stream flow and impounding reservoirs; pipe systems, pumps and pumping plants; the treatment of water, including sterilization; the operation and maintenance of water-works distribution systems, and water-works finance.

Water Treatment

"Bibliography and Abstracts on the Chloramine Treatment of Water" has been prepared by the United States Works Progress Administration for New York City, as part of a program of research in selected problems of sewage treatment. Although a complete bibliography has not been attempted, the volume contains 119 entries without annotations, 123 entries abstracted. Entries are indexed by both subject and title. The material should prove useful for the practical water supply engineer as well as the research man.

Corrosion of Metals

"A Symposium on Protecting Metals Against Corrosion," published by the American Society for Testing Materials, describes four means of preventing corrosion of metals—by resistant alloys, metallic coatings, pretreatment of metals, and organic coatings. The articles discuss not only the advantages to be gained by protection, but also the limitations of the different processes as to both quality of finished product and problems of processing. 24 pp. 50c. (Apply to The American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa.)

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The Big City

The Big City—A Human Study of London.—By Robert Sinclair. Reynal & Hitchcock, Inc., New York. 1938. 419 pp. including references and index. $3.00 *from* THE AMERICAN CITY.

This book is a biting indictment of London city life and what it does to its people. In its discerning analysis, it sweeps over the whole field of private and public city life: the city man's home, work, leisure, public health and hospitals; unemployment and relief; housing; police and crime; disposal of waste and sewage; traffic, transportation and accidents; fire protection; water works; lighting; propaganda; government and politics; city planning; business; education; war. And through the author's eyes the city of London becomes a tumultuous procession of the poor, the diseased and maimed, the insane, the ill-housed and ill-fed, the unemployed, the dirty, the trampled and deluded, the stupid and ignorant and smug, the mean, the corrupt, the perverted and brutal.

The conclusions reached are based for the most part, with depressing solidarity, on facts and statistics from London's official reports. The author offers no constructive remedy for the dismal phenomenon which he describes as the city. And yet the book does not, withal, leave the reader hopeless. It is calculated, rather, to arouse anger and action. Although misery is painted in strong colors, the implication is there that the inefficiency and corruption of a city and its tragic results could have been prevented—are not necessary.

In sum, "The Big City" is at once repelling and compelling, depressing and stimulating—like a great city, perhaps.

Safe Driving

Sportsmanlike Driving.—Published by the American Automobile Association, Washington, D. C. 1938. 502 pp. including index. $2.50.

These five pamphlets, bound together in boards, illustrate the increasing thought that is being directed toward making the new driving generation conscious of the delicate and shattering power it wields.

The first section, "The Driver," is concerned with the equipment of the man at the wheel—his reaction time, eyesight, physical fitness, judgment and quick decision, control. The second section, "The Driver and Pedestrian," deals with the driver's responsibilities toward the man on foot. The third, "Sound Driving Practices," includes an analysis of good driving principles, with particular emphasis on the *why* of slowing down on a curve or on a slippery road, for example. "Society's Responsibility," the fourth of the sections, describes the change in our whole social life that has come with the automobile, traffic and highway problems, legislation and enforcement, public opinion and education. "How to Drive," the fifth, not only describes the various techniques and maneuvers involved in driving, but gives information that a driver should have about the parts of his machine and their workings. Adding greatly to the popular appeal and usefulness of this volume are the dramatic and attention-attracting cartoons and illustrations which aptly bring out the various points in the book.

Land Subdivision

According to a particularly forceful and clearly written report by the New Jersey Planning Board on "Land Subdivision in New Jersey," that state has suffered from land booms less spectacular, but no less disastrous, than those of Michigan, Florida and California. Land is platted in excess of probable future population increase, with little regard to the public interest or suitability of ultimate use. Excessive expenditures for public improvements and services—adding greatly to costs of municipality, county and state—are necessary because of the low-average quality of this premature land subdivision. For the same reason, much of the land will never be sold. Tax rates are increased and tax delinquency becomes higher.

The report recommends: the establishment of municipal and county planning boards which would adopt platting rules and regulations, and prepare long-range development plans; a program of cooperation between local government and real estate for the revision of existing subdivision plans; a campaign of education directed toward improved land-subdivision practice; and, if necessary, the enactment of legislation facilitating the vacating of recorded land subdivisions and regulating real estate subdivision practice. 74 pp. 50c. (Apply to N. J. State Planning Board, Trenton, N. J.)

City and Industry

How to Promote Community and Industrial Development.—By Frederick H. McDonald, Chairman, Engineering Economics Division, and Past Director, American Society of Civil Engineers. Harper and Brothers, New York. xii + 260 pp. $3.00 *from* THE AMERICAN CITY.

Communities profit by growth from incoming industries. Industry profits with change of location to a more advantageous site. The implications for the welfare and advancement of both the corporation and the community which result from the interrelation of these two facts are the subject of this book.

It analyzes principles and procedures for promoting the healthy growth of communities: the necessity for community planning in "molding" community growth; factors which influence community growth; factors which make a location a good one for industry; the organization of the development bureau; making and using to advantage a survey of the community's assets and liabilities—overcoming liabilities and creating assets; expanding local enterprise, attracting new enterprise; helping the new industry in establishing itself. One section of the book deals with trends which affect the progress of enterprise, and another with increasing industrial growth in the South.

Revenue Bonds

Revenue Bonds—The Nature, Uses and Distribution of Fully Self-Liquidating Public Loans.—By John F. Fowler, Jr. Foreword by Robert Moses, Commissioner of Parks, New York City. Harper & Brothers, New York. 1938. xii + 249 pp., including appendices and index. $3.00 *from* THE AMERICAN CITY.

One more manifestation of the enlarging scope of government activity is this book dealing with a relatively new and increasingly important type of bond. Revenue bonds are analyzed, in nontechnical language, from the point of view of the public borrower, the investor and investment dealer, the taxpayer, and the consumer of the project which the bond finances. Revenue bonds are defined and all aspects of their workings are described and analyzed; a history of their origins and development is outlined; their advantages and dangers are discussed. One chapter describes several typical bond issues. Other chapters deal with: Investment Analysis; Remedies in Event of Default; Tax Exemption and Legality for Investment; Marketing; Related Development at Home and Abroad.

Health

The 1937 Annual Report of the International Health Division of the Rockefeller Foundation gives an account of the three main parts of the Division's work during the past year: investigation and control of specific diseases; aid to state and local health services; and aid to public health education. The major section of the report deals with research and control work in specific diseases of public health interest, including yellow fever, influenza, tuberculosis, yaws, syphilis, hookworm disease, rabies, scarlet fever, undulant fever, malaria, and other diseases.

The report is intended for the reader with specific interest in the public health and scientific research aspects of the work of the Foundation. 243 pp. (Apply to International Health Division, The Rockefeller Foundation, 49 W. 49th St., New York.)

Housing

"Demolition, Vacation or Repair of Substandard Buildings in Connection with Housing Programs: Summary of Latest Cases—Model Ordinance Annotated," Report No. 39 of the National Institute of Municipal Law Officers, is a companion report to "Demolition, Vacation or Repair of Substandard Buildings in Connection with Housing Programs: Municipal Experience—Legislation—Administration—Judicial Decisions—Proposed Model Ordinance," Report 37. In Report 37 criticisms on the proposed model ordinance were requested, and it was stated that a revised model ordinance would be published later, on the basis of criticisms received. Report No. 39 contains this revised ordinance. Both reports should be read in order to have a complete understanding of the model ordinance as finally recommended. The Institute stands ready to assist cities in adapting the ordinance to local conditions. 11 pp. (Apply to the National Institute of Municipal Law Officers, 730 Jackson Pl., Washington, D. C.)

Grand Central Zone

The Gateway to a Continent.—Published by the New York Central System. 1938. 36 9 x 12 pp. Maps and many views, with colorful details.

In old New York the roads, which had to run north in order to get anywhere, became avenues. One of them is Park Avenue—south below the Grand Central Station, and north above it, a nationally known residential thoroughfare in the Grand Central Zone. In this 48-acre "city within a city" are office buildings for 20,000 workers, apartment houses offering 3- to 17-room suites, and eight hotels within a half-hour of the site of the New York World's Fair. From the 20th floor of these harmonious buildings, one may watch the 8-lane traffic on the Avenue and wonder where all the people come from to populate this Grand Central City. The answer is—from everywhere, by subway and bus and by way of the tracks sunk so far below street level that the streams of famous trains are as silent to the dwellers as is the East River or Broadway to the west. The news is that here was a paper plan on which construction was started and completed because it served a gigantic practical purpose.

Public Personnel Problems

Public Personnel Problems—From the Standpoint of the Operating Officer.—By Lewis Meriam. Published by The Brookings Institution, Washington, D. C. xii + 387 pp. $3.00.

The author of this discerning book defines "operating personnel administration" as "that part of personnel administration which has not been and perhaps cannot be separated from the rest of the day-to-day management of an operating agency," as distinct from "control personnel administration" by a separate, controlling personnel agency, or "development personnel administration" which is educational and promotional in character. This approach to the subject has particular value because existing literature on public personnel has usually dealt with the standpoint of the central personnel agency, even though there are many more positions in the operating field and most of the real personnel work is the responsibility of the operating officer.

The contents include: Analysis of Positions and Employees; Selection of Employees; Civil Service Tests; Salaries and Salary Fixing; Hours of Work, Vacation Leave, and Holidays; Sickness and Sick Leave; Safety; Retirement; Morale and Discipline; Employee Representation; Unions of Government Employees; Political Activities and Political Contributions; Relationship Between Political Officers and Civil Servants; Careers in the Public Service and University Training for the Public Service; Organization for Public Personnel Administration.

Pittsburgh Housing

The Pittsburgh Housing Association has gotten out a particularly live report of its activities and of general housing conditions in Pittsburgh from 1934 to 1937. Contents include the following: Part I—Recent Trends; Part II—Present Conditions in Pittsburgh—Section I, Rents in the Slum Districts, Section II, Demolition of Dwellings, Section III, Re-Use of Lots Made Available by Dwelling Demolition; Part III—Present Conditions in Allegheny County; Part IV—Cooperation with Other Agencies. The two major parts of the Association's work are explained: checking legal violations of substandard dwellings and pressing for correction; and making information on housing conditions known to law-enforcing officers and other interested persons.

Particular mention should be made of the effective photographic illustrations and their compelling captions. As example of the latter, over the photograph of the shattered remains of a building: "Every once in a while an old house falls in; sometimes no one is killed."

Brick Pavements

"Specifications for Bituminous-Filled Brick Pavements," adopted by the American Association of State Highway Officials, cover the following subjects: Description; Materials; Headers; Bedding Course; Construction of Bedding Courses; Premolded Joints; Handling Brick; Laying Brick; Rolling; Filling; Application of Separating Agent; Applying Filler; Removing the Surplus Filler; Requirements for Smoothness; Method of Measurement; Basis of Payment. 9 pp. (Apply to The National Paving Brick Assn., National Press Bldg., Washington, D. C.)

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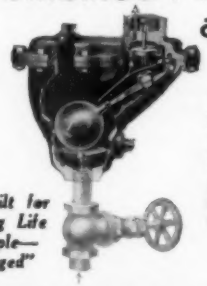

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Planning in England

The residence of the Garden Cities and Town Planning Association in London to the Royal Commission on the Geographical Distribution of the Industrial Population outlines the history and explains the principles of the garden city idea, and discusses the movement toward population centralization and its disadvantages. To remedy the situation in England, the Association recommends a comprehensive national plan and a general policy of decentralization. "A National Planning Board would be formed which would have the power to restrict the settlement of business and industry in over-grown aglomerations and in agricultural areas," and to encourage industry and other developments in new towns and garden cities or in suitable existing towns or areas. Principles are outlined for the development and re-development of towns, and for the revision of planning statutes and by-laws. 43 pp. (Apply to The Garden Cities and Town Planning Association, 13 Suffolk St., Pall Mall, London, S. W. 1, England.)

Summary and Index of Research Projects

The results of some 2,000 research projects carried on as part of the Federal work relief program are summarized briefly in a digest and index which has been published by the Works Progress Administration. This volume of 291 pages contains a concise statement of the principal conclusions of each study and an alphabetical subject index to the contents. A small edition of this volume has been prepared for distribution to the larger public and university libraries, where it will be available for reference, and for government departments, industrial concerns and research foundations. A limited supply of copies of this Index of Research Projects are still available. Requests should be addressed to the Works Progress Administration in Washington.

Soil Conservation

The Soil Conservation Service of the U. S. Department of Agriculture has published a pamphlet, "Erosion on Roads and Adjacent Lands," which, in a few brief, effectively illustrated paragraphs, tells the story of destruction by erosion: to roads by run-off from adjacent farm lands; to farm lands by run-off from adjacent roads. Methods of erosion prevention by planting and improved road design are indicated. A plea is made for cooperation between highway agency and landowner in an effort to impede this agent of decreased land values and increased road-maintenance costs. 8 pp. 5c. (Apply to Soil Conservation Service, Dept. of Agriculture, Washington, D. C.)

Relief

"Public Relations in Public Welfare: a Digest for Interpreters" summarizes current public attitudes toward relief and people on relief; explains how these attitudes came about; gives facts and figures to answer misinterpreters. Answers are given to such common exaggerated criticisms of relief as: "People on relief don't want to work," "All relief is administered with waste and extravagance."

The pamphlet is written in snappy, promotional style. Public officials and social workers who are responsible for interpreting the function and administration of relief to the public should find it very usable. 17 Multilith pp. 35c. (Apply to the Social Work Publicity Council, 130 E. 22d St., New York.)

Chicago Building Code

Chapters 12, 19 and 49 of the Building Code of the City of Chicago, passed by the Chicago City Council on August 3, relate respectively to garages, frontage consents, and water supply and distribution systems. 26 mimeographed pp. with 6-page index. 10c. (Apply to the Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

Taxpayers' Organizations

The September issue of *Tax Policy* is devoted to a listing of data on 538 national, state and local taxpayers organizations in the United States. Information concerning executive officer, number of members, budget, periodical, and purpose of each organization, are given wherever such information was obtainable. Only those organizations are included which are composed of taxpayers as such and organized primarily for tax purposes. No attempt is made to evaluate the program of any organization. 31 pp. 50c. (Apply to Tax Policy League, 309 E. 34th St., New York.)

Green River Ordinance

Local officials who are considering the adoption of the Green River ordinance will find helpful an analysis, by the American Municipal League, of court decisions on its legality. The Green River ordinance prohibits all house-to-house selling or soliciting without an invitation from the occupant of private premises. The report concludes that there is no "weight of authority" or "majority holding" for or against the legality of the ordinance, and considers its possibility of enforcement in different communities. 10 pp. 50c. (Apply to American Municipal Assn., 1313 E. 60th St., Chicago, Ill.

Other Reports Received

FAIRFIELD COUNTY, CONN.—"A Planned County Emerges." Fairfield County Planning Association, Bridgeport, Conn. 1938. 7 pp.

HARRISBURG, PA.—"The Part That Doesn't Show!" Annual Report, Chamber of Commerce. Oct. 3, 1938. 27 pp.

NEW YORK, N. Y.—"Public Welfare in Transition." Annual Report, Department of Public Welfare, 1937. 132 pp.

PASADENA, CALIF.—Annual Report, City Manager, 1937-1938. 54 pp.

SALINA, KANS.—Annual Report, City Clerk, 1937. 42 pp.

Conventions -- When and Where

Meeting is annual convention unless otherwise designated

NOVEMBER 14-19.—HAVANA, CUBA.
Pan American Congress of Municipalities. Congress. Address: Clifford W. Ham, Exec. Sec., American Municipal Association, 1313 E. 60th St., Chicago, Ill.

NOVEMBER 15-16.—NEW YORK CITY.
Conference on Roadside Improvement. (Russell Sage Bldg.) Joint conference of the National Roadside Council, Conservation Committee of the Garden Club of America and American Planning and Civic Association. Address: Exec. Sec., Miss Harlean James, 901 Union Trust Bldg., Washington, D. C.

NOVEMBER 16-18.—DETROIT, MICH.
Michigan Municipal League. Acting Dir., Herbert A. Olson, 205 S. State St., Ann Arbor, Mich.

NOVEMBER 17-18.—ATLANTIC CITY, N. J.
New Jersey State League of Municipalities. Exec. Sec., S. S. Kenworthy, 808 Trenton Trust Bldg., Trenton, N. J.

NOVEMBER 18-19.—ASBURY PARK, N. J.
New Jersey Health and Sanitary Association. (Berkeley-Carteret Hotel.) Sec., Dr. Edward Guion, Drawer D, Northfield, N. J.

NOVEMBER 30-DECEMBER 2.—WASHINGTON, D. C.
Highway Research Board of the National Research Council. Dir., Roy W. Crum, 2101 Constitution Ave., Washington, D. C.

DECEMBER 1-3.—PENSACOLA, FLA.
Florida League of Municipalities. (San Carlos Hotel.) Sec.-Treas., E. P. Owen, Jr., 1201 Lynch Bldg., Jacksonville, Fla.

DECEMBER 1-3.—BALTIMORE, MD.
National Association of Civic Secretaries. (Lord Baltimore Hotel.) Sec., Miss H. Marie Dermitt, Hotel William Penn, Pittsburgh, Pa.

DECEMBER 1-3.—BALTIMORE, MD.
National Municipal League. (Lord Baltimore Hotel.) Sec., Howard P. Jones, 309 E. 34th St., New York.

DECEMBER 3.—BALTIMORE, MD.
Proportional Representation League. (Lord Baltimore Hotel.) Exec. Sec., George H. Hallett, 309 E. 34th St., New York.

DECEMBER 5-9.—DALLAS, TEXAS.
American Association of State Highway Officials. Exec. Sec., W. C. Markham, 1220 National Press Bldg., Washington, D. C.

DECEMBER 5-9.—NEW YORK CITY.
American Society of Mechanical Engineers. National Secretary, C. E. Davies, 29 W. 39th St., New York.

DECEMBER 5-7.—WASHINGTON, D. C.
Institute of Municipal Law Officers. (Mayflower Hotel.) Exec. Dir., John A. McIntire, 730 Jackson Pl., Washington, D. C.

DECEMBER 8-11.—WASHINGTON, D. C.
American Public Welfare Association. (Wardman Park Hotel.) Dir., Fred K. Hoehler, 1313 E. 60th St., Chicago, Ill.

DECEMBER 28-30.—DETROIT, MICH.
Tax Policy League. Exec. Sec., Dr. Mabel L. Walker, 309 E. 34th St., New York.

JANUARY 18-20, 1939.—NEW YORK CITY.
American Society of Civil Engineers. Sec., George T. Seabury, 33 W. 39th St., New York.

JANUARY 20-21.—WASHINGTON, D. C.
National Public Housing Conference. Sec., Miss Helen Alfred, 112 E. 19th St., New York.

JANUARY 23-27.—LAFAYETTE, IND.
Purdue Road School (Purdue Univ.) Address: Ben H. Petty, Professor of Highway Engineering, Purdue Univ., Lafayette, Ind.

FEBRUARY 15-17.—NEW YORK CITY.
Association of Highway Officials of North Atlantic States. (Hotel Pennsylvania.) Sec.-Treas., A. Lee Grover, State Highway Dept., Trenton, N. J.

FEBRUARY 20-22.—OTTAWA, ONT.
Engineering Institute of Canada. (Chateau Laurier.) Gen. Sec., L. Austin Wright, 2050 Mansfield St., Montreal, Que.

FEBRUARY 21-24.—WICHITA, KANS.
Southwest Road Show and School. Mgr., F. G. Wieland, 225 South Water St., Wichita, Kans.

FEBRUARY 27, WEEK OF.—LOS ANGELES, CALIF.
The Asphalt Institute. (Biltmore Hotel.) M'ng Dir., J. E. Pennybacker, 801 Second Ave., New York.

MARCH 1-3.—NEW YORK CITY.
American Concrete Institute. (Roosevelt Hotel.) Sec., Harvey Whipple, 407 New Center Bldg., Detroit, Mich.

MARCH 7-10.—SAN FRANCISCO, CALIF.
American Road Builders' Association. Engr. Dir., Charles M. Upham, 952 National Press Bldg., Washington, D. C.

MARCH 9-10.—TRENTON, N. J.
New Jersey Sewage Works Association. (Stacy-Trent Hotel.) Sec., John R. Downes, Bound Brook, N. J.

APRIL 12-14.—TORONTO, ONT.
American Water Works Association—Canadian Section. (Royal York Hotel.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Parliament Bldg., Toronto, Ont.

MAY 8-13.—CHICAGO, ILL.
National Fire Protection Association. M'ng Dir., Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

JUNE 11-15.—ATLANTIC CITY, N. J.
American Water Works Association. (Headquarters: Hotels Ambassador and Chelsea.) Sec., Harry E. Jordan, 29 West 39th Street, New York.

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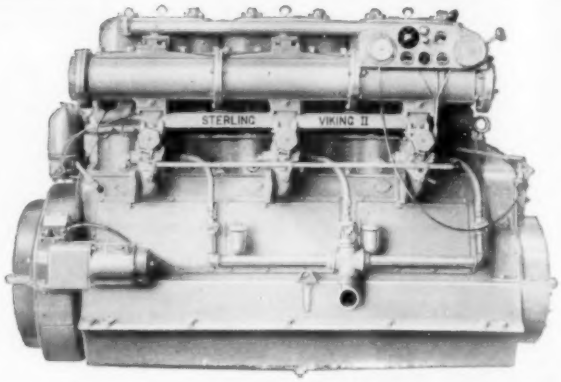

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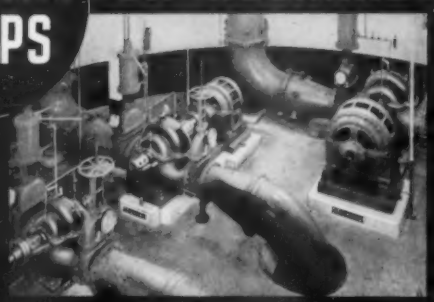

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NEW YORK

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Pipe Thawing with Arc Welders

By F. J. HIRNER
Harnischfeger Corporation, Milwaukee, Wis.

TO MEET those occasions when water services and water pipes freeze, a few years ago the arc welding generator was first employed as a means for pipe thawing. Today many city water departments, as well as welding shops themselves, are finding this an exceptionally good method for freeing the pipes of ice quickly and economically. The suggestions below tell how to build your own unit, and the procedure to follow.

Any standard welding generator may be used for this purpose without alteration. Rugged construction, ease of operation, simple control, and wide range of adaptability, all tend to make the present-day welder ideal for this use. As a stationary unit it may be mounted in the bed of a light truck, or as a portable unit it may be easily attached to a truck by a trailer tow-bar. A gasoline-driven model welder is generally used, because it is independent of electrical power facilities.

The method of thawing frozen water pipes by a flow of electrical current through the pipe has many advantages. The pipe is heated by its resistance to the flow of the current. This eliminates the old, expensive and slow method of digging frozen ground and tearing up streets and sidewalks. The pipe is fully warmed by electrical energy being dissipated in the form of heat. Every form of metal which conducts electricity nevertheless offers some resistance to the flow of electrical current. This resistance causes a loss of electrical pressure, voltage, in pumping the current through the circuit.

In handling the actual thawing it makes no difference how the positive and negative leads are connected with respect to the pipe, but where water mains are involved it is generally possible to connect the leads to fire-plugs, curb service cocks and other similar points. In the case of house lead-in pipes or service pipes, connection may be made to each side of the frozen pipe section so that the frozen part forms a part of the current circuit. The current indicator should be set so that sufficient amperage passes through the frozen pipes.

It is impossible to state the exact current amperes and time required to thaw a given length of pipe. The type and size of pipe determine the maximum amperage that may be used. It is well to bear in mind that a lead pipe will melt at much lower temperature than a corresponding size of copper or iron pipe. The condition of the soil, location of the pipe, extent of the freeze, the temperature of the air, the type and size of pipe, kind of joint, and amount of current, are all factors determining the time required to thaw. The following table shows the recommended current and the approximate number of minutes required to thaw different sizes of pipe:

Size of Pipe	Recommended Current in Amperes	Approximate Minutes to Thaw
¼″	70	14
½″	120	21
¾″	210	19
1″	220	28
1½″	300	31
2″	340	39
3″	410	58
4″	500	74
6″	500	118

Use welding cable of a size at least equal to that used for a similar current in arc welding. Care should be exercised to select a cable of ample size, for otherwise considerable energy will be wasted by heating the cables. This is particularly important if long cables are used. Make all cable connections to the generator and pipe as tight as possible and see that all rust, grease and scale are cleaned off the pipe at the point of connection with the cables. Connect the cables as close to the frozen spot as possible. Pass no current through the water meter. Check the gas pipe system to make sure that its pipes are not in contact with the water pipes. When thawing pipes in a residence or building, first open the house lead-in electric service switch to prevent the possibility of a short circuit or some similar complication. It is also advisable to disconnect the radio ground wire if connected to the water pipes.

Meetings on Sanitary Equipment Planned

The Sanitation Group of the American Society of Mechanical Engineers has arranged a very interesting group of meetings, open to the public this coming winter and spring, on the mechanical equipment used in sewage treatment. All these meetings will be held in the Engineering Societies Building, 29 West 39th Street, New York, at 7:30, in Room 502. Speakers of note from all over the country will present the formal papers and discussions, followed by informal discussions from the floor.

The first meeting took place on October 11, at which the pumping of sewage sludge was the topic. The topics of the meetings for the rest of the program are as follows:

November 15—Sewage Sludge Incineration
January 18—Engines Operated by Gas from Sewage Sludge
February 28—Clarifiers for Treating Sewage
March 15—Flocculators for Conditioning Sludge
April 11—Mechanical Driers for Sewage Sludge
May 16—Digester Mechanisms for Sewage Sludge

The meetings have been arranged by the Group, of which William Raisch, consulting engineer, New York City, is Chairman.

New Fast Power Grader

Allis-Chalmers Manufacturing Co., Tractor Division, Milwaukee, Wis., has just announced the new Speed Maintainer, a finishing and maintenance tool designed particularly for the use of city street departments, airports, park boards and township highway divisions. The Speed Maintainer is one-man operated and readily maintains the average dirt or gravel road at from 3.5 to 4.75 miles per hour. It is short, will turn in a 16-foot circle, making it ideal for fine grading between forms or for use in narrow alleys. Originally designed for maintenance use, the Speed Maintainer has shown itself to be fast and economical in breaking up big clods and leveling behind blade and elevating graders. It is mounted on pneumatic tires and has a top speed of 9 miles per hour.

It carries a 9-foot blade, which is 13½ inches high, with a blade curve of 9½ inches. A pressure of 3,990 pounds can be applied to the blade, which has an angular rotation of 70 degrees.

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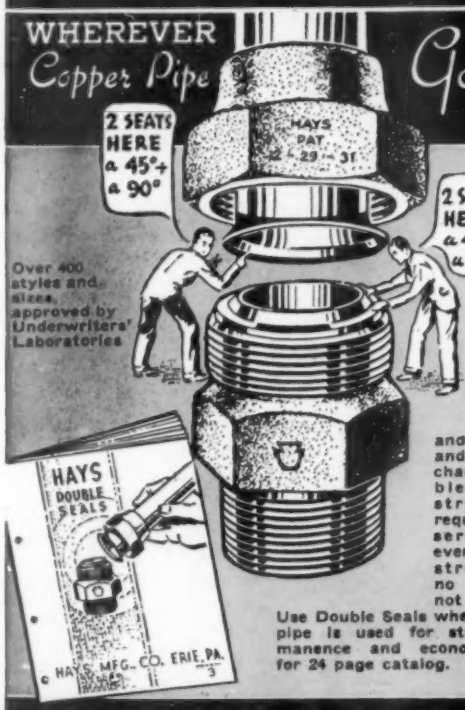
HAYS DOUBLE SEALS

WHEREVER Copper Pipe Goes...


2 SEATS HERE a 45°+ a 90°
HAYS PAT. 2-29-31
2 SEATS HERE a 45°+ a 90°
Over 400 styles and sizes approved by Underwriters' Laboratories
HAYS DOUBLE SEALS
© HAYS MFG. CO. ERIE, PA.

Only Double Seals have 2 planes of contact between tube and fitting (45° and 90°). Mechanically, Double Seals are stronger than required by any service. However, this extra strength costs no more, why not have it?

Use Double Seals wherever copper pipe is used for strength, permanence and economy. Write for 24 page catalog.

HAYS MFG. CO., ERIE, PA.

The Standard
for more than
50 Years

Automatic Pressure Control Valves
•
Feed Water Filters
•
Hydraulic Engines
•
Portable Fire Hydrants
•
Hydraulic Booster Pumps

ROSS VALVE MFG. CO., INC.

ARCHIBALD STREET — TROY N. Y.

The EDDY Hydrant

Eddy Fire Hydrants have many points that appeal to water-works men. For example:

A damaged valve can be replaced in a few minutes at slight expense.

Should the standpipe be broken, not a drop of water need be lost.

All hydrants are frost-proof.

These and many other points of excellence are thoroughly explained in our catalog, which it will pay you to study.

Also manufacturers of the well-known Eddy Valves

EDDY VALVE COMPANY
WATERFORD **NEW YORK**

Representatives
Jas. B. Clow & Sons, Chicago, Ill.
National Cast Iron Pipe Co., Birmingham, Ala.

Check in at DeWITT OPERATED HOTELS

In CLEVELAND it's The HOLLENDEN

In COLUMBUS it's The NEIL HOUSE

In AKRON it's The MAYFLOWER

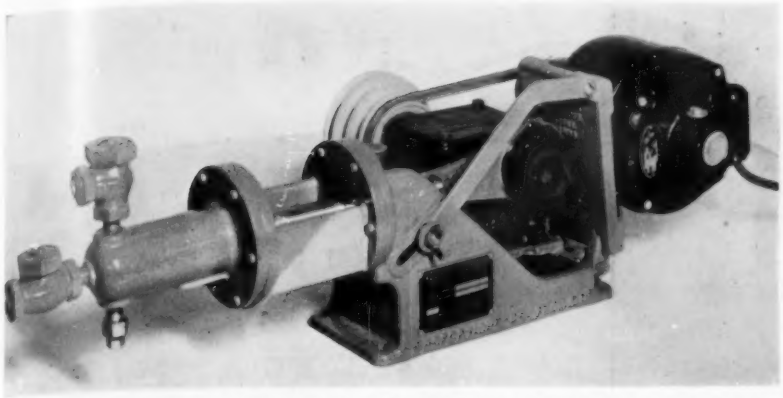
In TOLEDO it's The NEW SECOR

In JAMESTOWN (New York) it's The JAMESTOWN *and* The SAMUELS

and featuring

Unusually Comfortable, Modern Rooms; Good Food, Carefully Prepared and Served; Every Modern Hotel Facility and Reasonable and Uniform Rates

"Genuinely Friendly"



THE PROPORTIONEERS ADJUST-O-FEEDER PUMP NOW ADAPTED FOR FEEDING AQUA AMMONIA IN WATER TREATMENT

Pressure Ammoniators for All Water Works

At the present time many small water works are using the Proportioneers Chlor-O-Feeder to safeguard their supplies through the use of hypochlorites. Proportioneers, Inc., 9 Codding Street, Providence, R. I., has recently announced the adaptation of its Midget Pump as an ammoniator, for either a constant rate of application or automatic application for any flow at any pressure. As the volumes of aqua ammonia applied for waterworks practice are relatively small, these pumps may be used for either small or large water works. Ammonia in the form of aqua ammonia costs approximately 50 per cent of ammonia in gas form, thus effecting a considerable saving in its use to provide chloramines which are effective for a longer period in providing a chlorine residual.

The Proportioneers Midget Amm-O-Feeder has a capacity adjustable from 0 to 5 gallons per hour against line pressures from 10 to 150 pounds per square inch. It is driven through a four-step cone pulley from a 1/6-hp, 110-volt, single-phase, 60-cycle, drip-proof motor. The pump is made of metal that is appropriately resistant to any action of ammonia.

General Utility Loader Handles Snow and Ice

The gasoline motor-driven, self-propelling and self-feeding general utility loader, made by Joy Manufacturing Co., Franklin, Pa., has been developed for the rapid and efficient handling or removing of such diverse materials as ashes, coal, cinders, snow and ice. The model PL-10 unit is of the inclined conveyor type with the patented Joy gathering mechanism. The arms feed the conveyor and clear the full width of the machine while it advances. The conveyor is mounted on an automotive chassis providing a complete unit which is controlled by one driver from a cab located on the left side of the conveyor immediately above the gathering head.

The machine is designed to load snow and ice into trucks at the rate of 10 cubic yards per minute, depending upon the condition of the material at the time of loading. Its speed while loading is approximately 1.5 miles per hour, with a traveling speed as high as 35 miles per hour.

The loading mechanism consists of the patented Joy gathering head and the elevating- and discharging-chain scraper conveyor. The use of a patented articulated section in the universal conveyor chain permits the top end of the conveyor to be swung laterally to either side of the machine for discharge into trucks either behind or traveling parallel to the loader. This eliminates the necessity for chutes and cross conveyors and makes possible a wide discharge range at minimum machine height. It also permits vertical adjustment of the discharge conveyor independent of the position of the gathering head.

The loading mechanism of the Type PL-10 loader is driven at a governed speed according to the loading requirements and powered by a standard direct-connected gasoline motor.

The vertical adjustments of the gathering head and conveyors and the lateral movements of the discharge are accomplished hydraulically by means of levers in the operating cab. All levers are clearly marked and easily actuated, giving a precise control over the machine.

Air-Circuit-Breaker Controls for Water-Pumping Stations

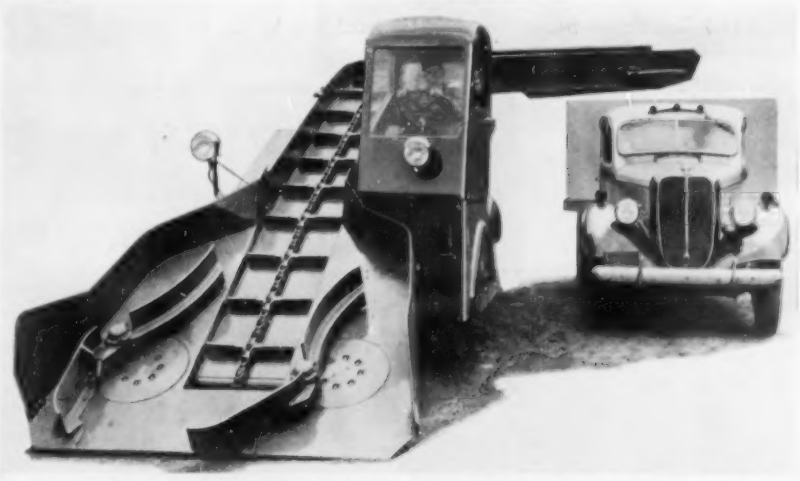
In water-pumping stations, direct air-circuit-breaker control and protection gives deep-well induction-motor-driven pumps a dependable automatic control which is necessary to assure the desired water levels. The quiet operation of this type of breaker prevents the hums which prove objectionable in residential and office-building districts. The electrically operated breaker combines in one unit an interrupting device and a motor starter, for across-the-line starting. It provides a three-phase, instantaneous interruption of high-capacity currents, and immediate restoration of service.

In operation when the water in the reservoir reaches a minimum level, the closing contacts of the float switch close the circuit. This energizes the closing relay of the breaker, which in turn energizes the breaker-closing solenoid. Then the breaker closes, and starts the pump. The closing of the breaker also closes the lower contacts of the cut-off device and opens the upper contacts, thus de-energizing the closing-relay circuit.

If the breaker trips under unusual circumstances such as overload or short circuit, it is locked out until the closing-relay circuit is energized either by automatic operation or by manual closing of the reset button.

When the water is pumped to the maximum level desired, the closing of the trip contacts of the float switch energizes the shunt trip of the breaker, and the breaker opens and stops the pump.

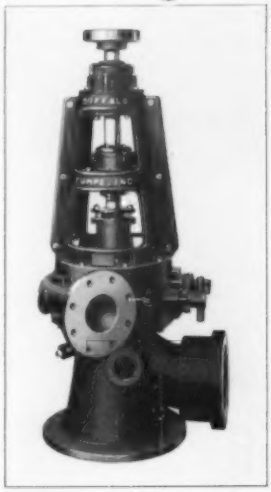
The type AE-1B safety-enclosed air circuit breakers are rated 500 volts a-c, 15 to 600 amperes, and 20,000-ampere interrupting rating. Full details of breaker construction will be found in Bulletin GEA-2450. Type AE-1A safety-enclosed breakers are rated 600 volts a-c, 15 to 225 amperes, and 10,000-amperes interrupting rating. The construction details of this type are given in Bulletin GEA-2833. Both Bulletins may be secured from the General Electric Co., Schenectady, N. Y.



THE JOY SNOW LOADER WITH THE ARTICULATED CONVEYOR SWING TO LOAD TRUCKS RUNNING PARALLEL TO THE MACHINE

These "Buffalo" Sewage Pumps Will Not Clog!

They are equipped with specially designed non-clogging impellers that insure high efficiency and dependable operation. The entire pump has been built for rugged, hard service the year 'round. Tell us your sewage pumping problem, and we shall be glad to recommend the size and type of Buffalo Non-Clogging Sewage Pump best suited to give you top performance at lowest operating cost.



Write for our new Bulletin No. 964-C

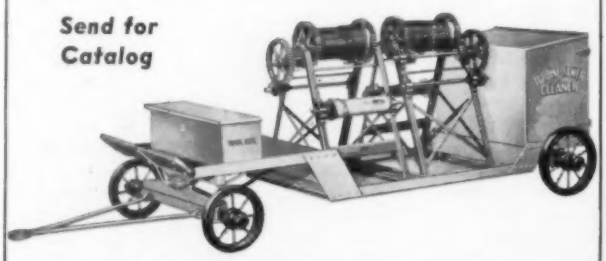
BUFFALO PUMPS, Inc.
189 Mortimer St. Buffalo, N. Y.
Branch Engineering Offices in Principal Cities
In Canada: Canada Pumps, Ltd., Kitchener, Ont.

REDUCE Wash Water Costs with SIMPLEX SAND EXPANSION INDICATORS and RECORDERS

WRITE FOR BULLETIN 60

6789 Upland Street Philadelphia, Pa.
SIMPLEX VALVE & METER COMPANY
Gauges, Air Valves and other Water Works Services. Manufacturers of Meters and Controllers of the Venturi Type

Send for Catalog



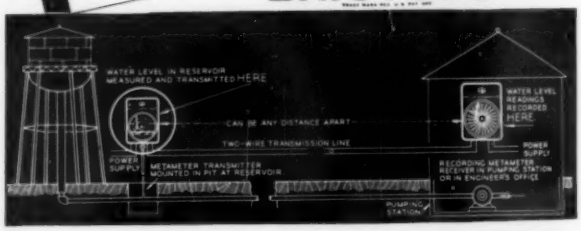
Complete Turbine Type Sewer Cleaner

TURBINE SEWER MACH. CO., Inc.
5210 W. State St. Milwaukee, Wis.

WATER LEVEL MILES AWAY
instantly recorded at pumping station

Bulletin 51-5S contains full information on Bristol's simple low-cost Metameter System for remote measurements of level. Write for copy. The Bristol Co., Waterbury, Conn.

BRISTOL'S


WATER LEVEL IN RESERVOIR MEASURED AND TRANSMITTED HERE
WATER LEVEL READINGS RECORDED HERE
CAN BE ANY DISTANCE APART
TWO-WIRE TRANSMISSION LINE
POWER SUPPLY
METAMETER TRANSMITTER MOUNTED IN PIT AT RESERVOIR
RECORDING METAMETER RECEIVER IN PUMPING STATION OR IN ENGINEER'S OFFICE
POWER SUPPLY
PUMPING STATION

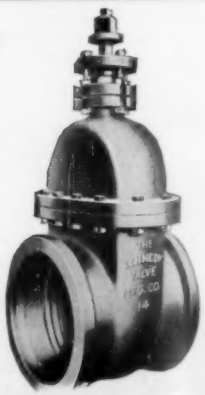
KENNEDY

SAFETOP FIRE HYDRANTS

Extra large standpipes; simple, straight-line operating mechanism; smooth elbow and nozzle curves; specially long-wearing valve and gasket materials; flood-proof and frost-proof. The Patented Safety Breakable Section permits speedy, economical repairs if broken in a smashing collision.

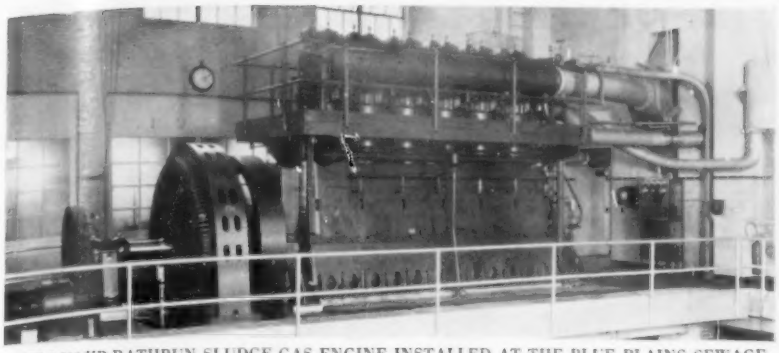
NEWTYPE WATER GATES

Built to A.W.W.A. Specifications. All parts amply strong, with simple, positive and dependable operating mechanism. Built in sizes up to 60 in. and for manual, gear, electric motor, or hydraulic cylinder control.



Send for Bulletins

THE KENNEDY VALVE MFG. CO., Elmira, N. Y.



THE 1,200-HP RATHBUN SLUDGE GAS ENGINE INSTALLED AT THE BLUE PLAINS SEWAGE-TREATMENT WORKS, WASHINGTON, D. C., TO DRIVE AN ELECTRIC GENERATOR

Developing Power from Sewage-Sludge Gas

An increasing number of cities are taking advantage of the power which can be developed through the use of the gases from sewage-sludge digesters. The Rathbun-Jones Engineering Co., Toledo, Ohio, which has been building gas engines since 1903, has made a number of installations of sludge gas-powered engines.

Rathbun-Jones engines of 3, 4, 5, 6, 7 or 8 cylinders are built on four different frames. Above 75 to 100 hp per cylinder the pistons are oil-cooled, and in general they may be operated upon any fuel gas, including sludge digester gas. A bulletin, Form 2499-RJ, has been issued by The Rathbun-Jones Engineering Co., completely describing its line of diesel and gas engines.

The principal installations of Rathbun-Jones sewage-sludge gas-powered units are in Washington, D. C., Toledo, Ohio, and Columbus, Ohio. The Washington, D. C., unit drives a generator and develops 1,200 hp, operating at a speed of 225 rpm. It is a 6-cylinder, 4-cycle engine started by air, and was placed in service in 1938. The Toledo, Ohio, unit is a 310-hp engine, operating at 480 rpm. It is a 4-cylinder unit, is started by air, and was placed in service in 1937. A similar unit of 180 hp operating at 514 rpm and having 3 cylinders was also placed in service in 1937. This one drives a generator. Three 750-hp engines are now being built for Columbus, Ohio, to drive generators. These machines have seven cylinders and will operate at 300 rpm.

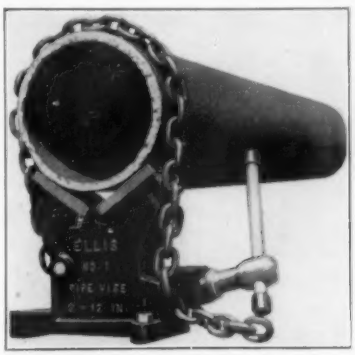
Supervision and Repair of Water and Gasoline Meters

The National Conservation Co., 80 Broad Street, New York, has been formed by V. Bernard Siems and D. F. Noonan for the repair, maintenance and testing of all liquid and gas meters. The supervision of gas and water meters of municipal and private water and gas utilities is the important activity of the company. Servicing of oil and gasoline meters for service stations is a new innovation of the company.

The company's service station and repair shop is located at 58-26 St. Felix Avenue, Ridgewood, Long Island, N. Y.

A Light Vise for Large Pipe

Ellis & Ford Manufacturing Co., Route 6, Box 508, Seattle, Wash., has developed a light vise for the holding of large sizes of pipe. It is almost impossible to cut



THE NEW ELLIS & FORD PIPE VISE

pipe when held with chain tongs, for they do not hold the pipe firmly. Thus a pipe vise is a companion tool of the well-known Ellis & Ford pipe cutter. The new pipe vise is light in weight, easy to handle, and can be affixed in any convenient position for holding the pipe for cutting and preventing slipping. It is shown in detail in the accompanying illustration.

Municipal Decorations for Christmas

Municipal Christmas decorations fashioned of Cel-O-Glass, a translucent plastic-covered wire mesh, are described in a new booklet just issued by E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. Holiday effects erected along the streets of several large cities, including Los Angeles, Calif., Omaha, Nebr., Wichita, Kans., Des Moines, Iowa, Kansas City, Mo., and others are illustrated. A number of suggestions and construction details are included.

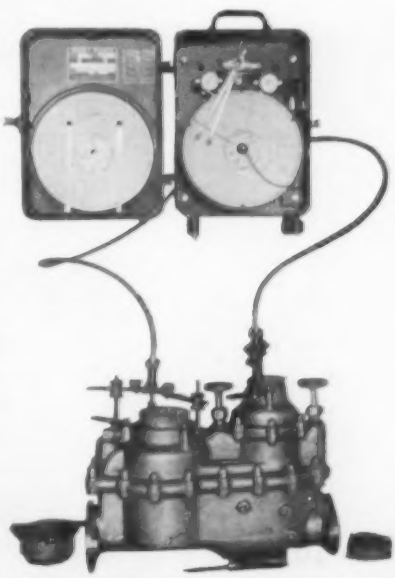
This new material is being adopted for decorative purposes, particularly in instances where the designer desires a transmitted or indirect lighting effect. Designs in color are applied to the surface, with the illumination beneath diffusing through to produce unusual effects. The material is flexible and can be adapted to a wide variety of shapes. Municipalities desiring to do something unusual this year should send immediately for a copy of du Pont's "Christmas Decorations," mentioning this descriptive news item.

When Is Water Used?

Water meters accurately record the total volume of water which has flowed through them. When complaints of high bills are received, it is necessary for the water department to thoroughly investigate the use or waste of water by that customer. The way to learn all about the water which flows through a meter is to attach a Meter-Master for 24 hours or less, and secure a complete record of the rate and time of flow. Thus, if one fixture or a machine is using more water than it should, the trouble can be easily pointed out. Another use of the Meter-Master, made by F. S. Brainard & Co., 246 Palm Street, Hartford, Conn., is to determine whether a department is losing money through oversized meters. Attaching a Meter-Master using a six-hour clock will give a complete record of the rate of flow, enabling the department to decide whether it can save money by using a smaller properly-sized meter and increase revenue by preventing slippage.

The Meter-Master is a rate recorder for water meters. It can be attached to any meter, single or compound, in about five minutes and does not interrupt the meter record through disturbance or removal of the meter dial. It is easily portable, as it weighs only 17 pounds, and is entirely mechanical in operation, requiring no batteries.

The newest Meter-Master displayed by F. S. Brainard & Co. at the New England Water Works Association Convention is equipped with a six-speed clock from which rates of 1, 3 and 6 inches per minute or rates of 1, 3 and 6 inches per hour may be obtained.



INSTALLATION OF A METER MASTER ON A COMPOUND METER

SURE GRIP SEWER RODS and ACCESSORIES

The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

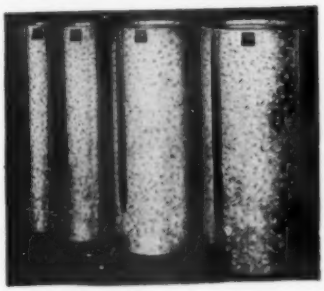
are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.

The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

Calibrated TESTING TANKS



Made in four standard sizes for requirements in all water meter shops.

Guaranteed accuracy within one-fourth of 1%.

Made of heavy gauge steel, thickly galvanized. Provided with quick opening drain valves.

All sizes of Ford Calibrated Testing Tanks are equipped with percentage gauges which indicate direct the accuracy of meters being tested. They are absolutely simple and easily used. Ask for catalog.

Ford Meter Box Co.

SETTING AND TESTING EQUIPMENT FOR WATER METERS
WABASH, IND., U.S.A.

QUICK ACTION

Blowers
Provides safe air for underground work. Supplies up to 2,000 cu. ft. Can be regulated. Weighs only 70 lbs. Operates by itself automatically. Needs no attendant. Comes with a long canvas air duct. Built for long life under the toughest service.

Homelite Portable Pumps
Get rid of water quick. 2" size pumps 8,000 gph.—weighs 79 lbs. 3" handles 15,000 gph.—weighs 91 lbs. Have fast automatic self-priming. Handle seepage or muddy water. Have 28-ft. suction lift.

Portable Generators
For floodlighting or time-cutting electric tools. Comes in three sizes. 2500-watt size weighs 135 lbs. 1250-watt size, 89 lbs. 650-watt size, 71 lbs. Completely automatic. Rugged. Always dependable.

ALL HOMELITE PORTABLES HAVE BUILT-IN GASOLINE ENGINES
SEND FOR BULLETINS

See complete advertisement in Municipal Index—page 665.

HOMELITE CORP. 211 Riverdale Ave. Port Chester, N. Y.

VALVES and HYDRANTS

MH

The Complete Line

Gate Valves—Check Valves—Valve Boxes—Fire Hydrants—Mud Valves—Shear Gates—Extension Stems—Floor Stands—Tapping Sleeves and Valves—Cutting-in Tees—Flanged Fittings.

M. & H. VALVE & FITTINGS CO.
ANNISTON, ALABAMA

IN WATER PLANTS
Raw Water Aeration
Quick Chemical Mixing
Coagulant Mixing
Contact Mixing
Recarbonation
Filtered Water Aeration

IN SEWAGE PLANTS
Activated Sludge Aeration
Trickling Filter Auxiliary
Mixing For Chemical Precipitation

"Jung Suction"
AERO-MIX
AERATOR-MIXER

A type and capacity to fit every existing or contemplated plant.

Gravity—Rotary
Pneumatic—Pressure.

Write for illustrated folder.

Vogt Mfg. Co. Inc. P. O. BOX 1122 LOUISVILLE - - KY.

DEPENDABLE ALWAYS

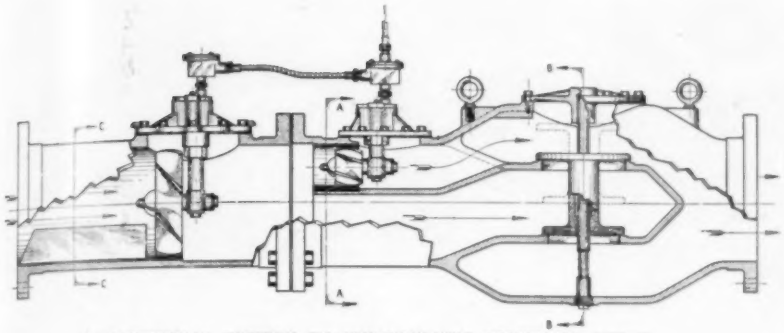
HYDRO-TITE

A DEPENDABLE SELF-CAULKING JOINT COMPOUND

For strong, tight, flexible cast iron water pipe joints ★★★ Used on thousands of miles of pipe for more than 24 years ★★★ Not a failure anywhere.

HYDRAULIC DEVELOPMENT CORPORATION
50 Church St., New York

HYDRO-TITE



LONGITUDINAL SECTION OF THE SPARLING COMPOUND METER

A Simple Compound Main-Line Meter

A simple main-line meter comprising two standard Sparling main-line meters has been announced by R. W. Sparling, 945-951 North Main Street, Los Angeles, Calif. This compound meter consists of a full-size flanged tube meter followed by a small inset meter capable of measuring flows below the minimum accurate range of the larger meter. The small meter is mounted in a tube which bypasses a full-capacity double-disc valve on the main flow. This positive compound valve is weighted to open only when the flow through the by-pass tube rises above the rate required for the large meter to attain accurate registration.

Both meters drive through ratchet clutches to a common totalizer shaft, which is thus operated in step with the faster-turning meter and free wheels on the slower-moving meter. The total flow through either one or the other is thus obtained, but the two registrations are never duplicated. At low flows the small meter registers the larger volume; but as the rate increases, the large meter comes into step, and when the valve opens, the large meter forges ahead and registers the entire flow as though no small meter or valve were present.

There is no sharp cut-over point and the pressure loss is very low. At full capacity the over-all pressure drop is less than 2 pounds per square inch. Any of the standard Sparling indicating and recording instruments may be operated from this compound meter by flexible cable or electric connection in the same manner as from a standard Sparling main-line meter.

New Line of Low-Cost Police-Radio Equipment

A new line of low-priced, ultra-high-frequency transmitters and receivers has been announced by the General Electric Co., Schenectady, N. Y. The new units are a 25-watt station transmitter, a 15-watt mobile transmitter, a superheterodyne station receiver, and a superheterodyne mobile receiver, and are for use in the 30- to 42-megacycle band by police departments, power companies, transit companies, and other services. They cost much less than previous designs of G-E equipment for the same use.

Both transmitters have several outstanding features. The 25-watt station transmitter has frequency control by a low-temperature-coefficient quartz crystal operating in a General Electric Thermocell. A self-contained rectifier power unit operates from a 115-volt, single-phase, 60-cycle supply. Other features include automatic level control, ample audio amplification to accommodate a velocity microphone, and tone calling.

The 15-watt mobile transmitter and dynamotor are built into a single unit to conserve space in the car trunk, simplify the installation, and eliminate cable connectors. The complete unit measures only 18 inches by 11 inches by 12 inches high. Resilient mounting for the dynamotor makes this unit construction possible and results in practically noiseless and vibrationless operation. Quick-heating, filament-type tubes provide full power in one and one-half to two seconds after the French-type handset is removed from the instrument-panel control unit.

Advertising Manager Changes at Harvester

Retirement of Frank W. Heiskell as Advertising Manager of International Harvester Co., Chicago, Ill., after 45 years of service with that company and the McCormick Harvesting Machine Company, has been announced. Mr. Heiskell has been succeeded as Advertising Manager by A. C. Seyfarth, who has been Assistant Advertising Manager.

Mr. Seyfarth entered the employ of the Harvester Company in 1904 from the University of Michigan and the University of Chicago, after a short time as an advertising salesman. After working first as a catalog writer, his successive promotions advanced him to chief catalog writer and copy chief, where he was in charge of all advertising copy production. He has been Assistant Advertising Manager since 1913.

Trucks and Buckets in City Improvements

With the aid of Federal funds, New York City is now sponsoring a huge civic program consisting of the construction of playgrounds, swimming pools, and new parks, and improving existing parks, repaving and recurbing, demolition and rehousing projects, and innumerable other works involving the purchase of new equipment. One of the most unusual-looking trucks being used on these projects is the model EFU Mack truck, illustrated, one of six new units in the service of Zenner Bros., Long Island City, N. Y., and equipped with a new type framework mounted on the chassis. This frame carries a large Dempster-Dumpster bucket on the back. This apparatus consists of an hydraulically operated hoisting gantry mounted on the truck chassis, with a complement of detachable steel boxes of various capacities ranging from 1 to 3 cubic yards.

In actual operation this new unit and its companions solve a two-fold problem. They help to absorb many unemployed men, as the units are designed for hand loading; and, second, they are stepping up the efficiency. The boxes are placed at strategic points from which they are picked up by the truck and carried to the dump while other boxes are being loaded by hand. The picking and dumping operations require a minimum of time, and there are no delays caused by idle labor or trucks waiting in line. One truck can take care of as many as five boxes. The new trucks are averaging as high as 24 trips per day in congested city traffic, and on short hauls handle as high as 100 loads per 8-hour day.

DEMPSTER-DUMPSTER BUCKETS CARRIED BY A MACK TRUCK ON A NEW YORK CITY WORK RELIEF PROJECT

for
LOWEST COST SNOW REMOVAL

Made for use with nearly all makes of industrial wheeled tractors, these low cost, high efficiency units are easy to install and simple to use.

Ideal for sweeping snow from walks, driveways, parkways, streets and alleys. Widely used for cleaning off skating ponds, parking sites and fireplug areas.

Hough Tractor Sweepers clean a five foot path. Brush is 30" in diameter; chain driven and adjustable for ground pressure. Can be attached or detached in one hour or less — weighs only 800 pounds.

Sweep clean with Hough Tractor Sweepers! Send for Bulletin No. 107 and the name of your nearest dealer.

THE FRANK G. HOUGH CO.
919 N. Michigan Ave. Chicago, Illinois

ROAD BUILDING and MATERIALS HANDLING EQUIPMENT — HOUGH "Since 1920" — THE FRANK G. HOUGH CO. 919 N. Michigan Ave. Chicago, U.S.A.

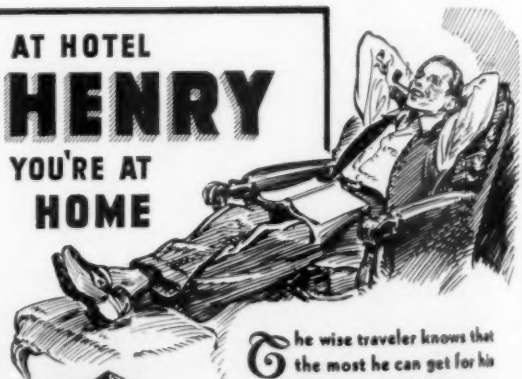
You will enjoy

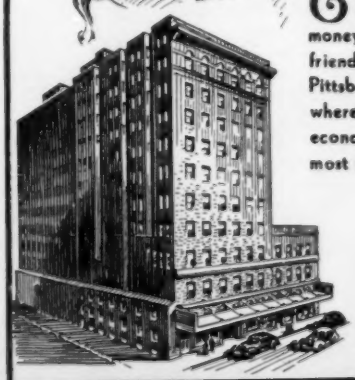
the cuisine that is known the world over, the friendly service, modern appointments, the midtown convenience— and genuine hospitality of the

BELLEVUE-STRATFORD

CLAUDE H. BENNETT, *General Manager*

AT HOTEL
HENRY
YOU'RE AT
HOME





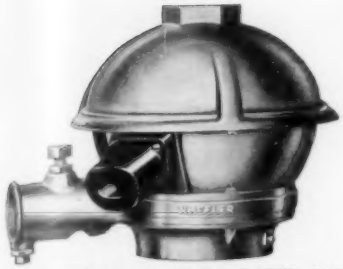
The wise traveler knows that the most he can get for his money is a good night's rest in a friendly, pleasant atmosphere. In Pittsburgh he stops at the Henry, where he can practice prudent economy and yet enjoy the utmost in genuine comfort.

FROM $2 SINGLE

FRANK PARKE, *Genl. Mgr.*

FIFTH AVENUE
AT SMITHFIELD

PITTSBURGH



THE WHEELER INSIDE-INSULATED ALL-METAL ELECTRIC HEAD

All-Metal Heads for Series Street-Lighting Circuits

The Wheeler Reflector Co., 275 Congress St., Boston, Mass., in a new Street Fixtures Catalog, Section 4, describes the new all-metal Wheeler heads for high- or low-voltage circuits, which are claimed to be radically different in design and conception and to effect a decrease in installation and maintenance costs.

The all-metal construction makes the heads practically indestructible, and the weight is only 7½ pounds when used without the banjo support. The heads are simple in design, with a crown, body, three types of holders, a banjo support and fittings, making possible as many as fifteen assemblies. The unit accommodates series lamps from 600 to 10,000 lumens, and by use of an adapter any unit can be converted to multiple operation.

The unit is dielectrically safe, there being a 28,000-volt flashover to ground, a safety factor of about six times the present normal circuit voltage. The inside insulator is of a high-grade homogeneous wet process porcelain. All live metal parts are enclosed within the wall of the insulator in such a manner that no direct ground is possible even should the insulator "through accident" be placed against the inside wall of the housing.

Gamewell Appoints New District Sales Manager

The Gamewell Co., Newton Upper Falls, Mass., announces that it has appointed Guilford T. Dunn as District Sales Manager for its Southwestern District, with headquarters at Dallas, Texas. Mr. Dunn is an electrical engineer by profession and has been associated with the Engineering and Sales Department of the company since 1928. During the past two years he has been Industrial Sales Manager for the New England District, and he has now been transferred to Dallas to succeed the late Charles F. Maulen.

Traffic-Line Machine Saves Paint and Labor

A new traffic-line marking machine which is said to effect economy by reason of its speed of operation and saving in paint and labor has been announced by Saylor-Beall Manufacturing Co., Detroit, Mich. With this machine it is possible for an inexperienced operator to lay down from two to four miles of clean-cut line, 2 to 6 inches wide, in an hour, as compared with the normal record of 700 feet per day by hand painting. This equipment is designed also to define playing fields, parking lots, airports, tennis courts and other municipal services. Dual spray attachment is available for painting parallel lines.

When equipped with an extra gun, cup and hose, the outfit is useful for painting traffic guards, fire hydrants, street-name signs and alarm boxes.

The standard equipment consists of a single-cylinder air compressor, driven by a gas engine, a 12-gallon air-paint storage tank, a pressure feed spray unit, all mounted on rubber tires and ball-bearing wheels. The edges of the spray are cut off by articulated shields which are free to move vertically, making operation easy over rough surfaces. The flow of material is regulated by the operator through a positive control trigger on the guiding handle. The pressure-feed feature is said to insure a deeply penetrating, long-wearing line, and the efficient atomization results in a saving in material. Thorough cleaning without dismantling is made possible by means of an auxiliary cleaning tank. The outfit weighs 150 pounds.

THE NEW SAYLOR-BEALL PNEUMATIC LINE MARKING MACHINE

Mellon Fellowship to Study Meters

Dr. E. R. Weidlein, Director of Mellon Institute, Pittsburgh, Pa., has announced the establishment of an Industrial Fellowship on meter technology by the Pittsburgh Equitable Meter Co., 400 Lexington Avenue, Homewood, Pittsburgh, Pa. Among the first projects to be investigated is that of adapting synthetic plastics as constructional material for liquid meters.

Dr. R. L. Wakeman is to be the incumbent of this Fellowship. He was trained at Massachusetts Institute of Technology, from which institution he received the degree of Ph.D in 1930. After two years of post-doctorate study at Paris and Zurich, he held an industrial position until he joined the research staff of the Mellon Institute in 1935. In addition to his broad training and experience in various fields of chemistry, Dr. Wakeman is an authority on synthetic resins and plastics.

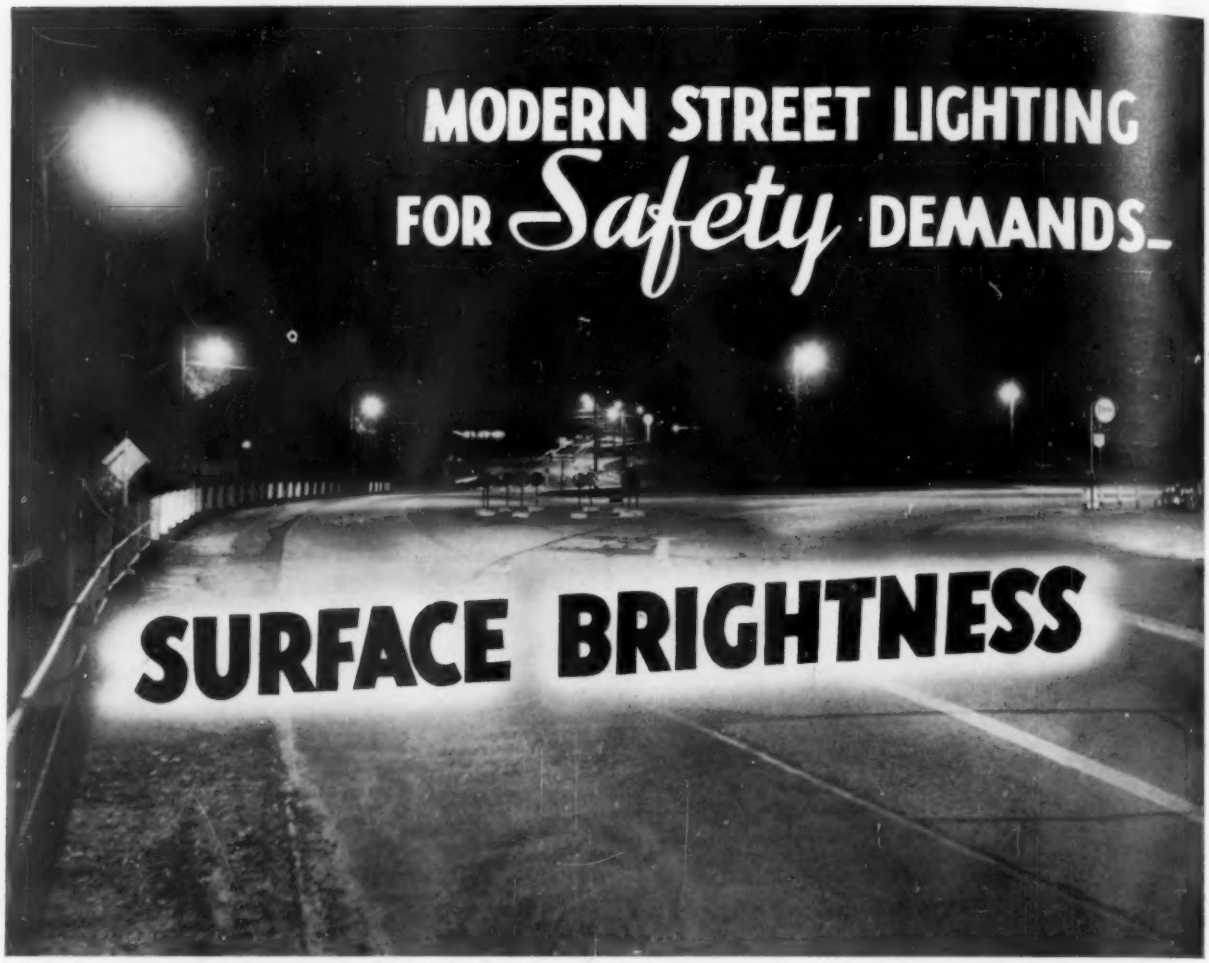
New Spreader and Finisher

The new D-K spreader and finishing machine announced by The Shunk Manufacturing Co., Bucyrus, Ohio, is designed to lay any type of mix, either hot or cold, to any thickness desired, and levels the mix without the use of forms. This new spreader and finishing machine has a capacity of 1,000 to 1,200 tons per day and lays variable widths from 6 feet to 10 feet.

The D-K spreader and finisher is supported at the rear end by wide-faced, endless and flexible belted tracks or treads giving six-point surface contact. A floating form at either side keeps the width of the new surface being laid constant. Screw-shafts are provided for raising or lowering the strike-off to control the depth of material spread. A screed adjusting screw raises and lowers the oscillating screed which controls the exact thickness of the mat or material and also finishes and smooths the new surface. The hopper, which is made of heavy sheet steel, has a capacity of 3 tons. The mixed materials are discharged from trucks into the hopper, and the trucks pull the unit forward until the hopper empties. For transporting from one job to another, two larger steel wheels are furnished and are attached to the rear axle after first jacking up the rear end. These wheels can be removed in approximately five minutes.

Complete details of this machine may be secured direct from the manufacturer.

THE NEW SHUNK D-K SPREADER AND FINISHING MACHINE FOR HOT AND COLD BITUMINOUS MIX



Modern street lighting is planned for safety, and safety demands brightness on the street or road surface. Pedestrians, obstacles and parked cars are thus plainly revealed. Use Hazard Armortite Cable with these new modern lights, and reliability is added to safety, for without dependable underground cables, any system is valueless.

Hazard Armortite Cables are protected by non-metallic armor and are laid directly in the ground without conduits. Armortite is light in weight, easy to handle and moderate in cost.

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DIVISION OF THE OKONITE CO.

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New York Chicago Philadelphia Atlanta Pittsburgh Buffalo Boston Detroit
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BOLTING A ROAD DIVIDER RAIL INTO POSITION

Roadside Guards Used for Center Strips

A new method of dividing opposing traffic lanes has been developed in California by the United States Spring & Bumper Co., Los Angeles, Calif., western representative of the Tuthill Spring Co., Chicago, Ill. This new Road Divider is a pair of Tuthill spring steel roadside guards installed back to back in the center of the roadway, using one post for mounting the two required brackets. The rails are 12 inches wide, convex in shape and fastened to spring steel heat-treated brackets which are attached to the post near the ground level and are so formed that the two rails are approximately 5 inches apart.

Because it is necessary to use as little road space as possible in the installation, the United States Spring & Bumper Co. developed a heat-treated spring steel post 4 inches wide, but taking up only ¾-inch of road width. By using a special-analysis spring steel, scientifically heat-treated, the post has a high tensile strength of 165,000 pounds per square inch. The special treatment of the posts gives great shock-absorbing assistance to the double-acting spring steel brackets on which the rail is suspended. These features give great resiliency and deflective action, allowing great absorption and diversion of shock with minimum danger to passengers and to the vehicle itself. The convex rail presents a smooth surface at hubcap height, and is installed in sections of 12-foot centers on straight roads and 10-foot centers on curves.

The initial installation connects the center pillars of two bridges 3,000 feet apart, requiring approximately 6,000 feet of Highway Guard. Three "S" turns and blind curves make this street particularly dangerous. The accident history of this stretch was very bad owing to average high speeds. Most of the serious collisions were caused by head-on collisions, sidewiping and driving into bridge abutments. This has been done away with completely by the installation of the new Road Divider.

Insulation for Pipes at Sewage Works

At most sewage-treatment plants there are a number of heating pipes, either steam lines or hot-water lines running underground to the digestor tanks and return and gas lines back to the boiler house. These pipes should be protected and insulated against the moist, acid condition generally prevailing underground, if high maintenance expenses are to be avoided. Ric-wiL conduit systems, made by The Ric-wiL Co., Union Commerce Building, Cleveland, Ohio, are especially designed for such conditions.

Ric-wiL conduit systems are furnished in three different grades: standard vitrified tile, which is satisfactory for most conditions; Super-strength vitrified tile for lines passing under roadways; and cast iron construction beneath heavy railroad tracks or similar heavy loads. The tile are of special bell-and-spigot designs scored inside and out for separation into half-sections, and are provided with a protective side joint shaped to lock in place with cement mortar, which is troweled into the joint recess after the top part is in position. The conduit is provided with an insulating liner of diatomaceous earth approximately 1 inch thick molded to the inside of the conduit. Directly beneath the conduit a first-grade vitrified hollow cradle type base drain is installed, so that each conduit section rests partly on two sections of the base. Cast iron rust-proof roller type supports are used, spaced 12 feet apart, designed to carry the weight of the pipes upon the base drain, independent of the tile conduit.

U. S. Pipe & Foundry Develops Pipe Joint

A pipe joint designed primarily for submarine lines has been developed by the U. S. Pipe & Foundry Co., Burlington, N. J., and given the name "Usiflex." The manufacturers expect it to be used widely at river crossings, water intakes, outfall sewers, and at any other type of pipe installation where a large amount of joint deflection is required.

The Usiflex joint is of simple construction, consisting of a cast iron split ring and follower ring, a rubber gasket with a duck tip, and a set of bolts. The joint pipe is made of high-strength gray iron by the pit cast process in nominal 12-foot lengths. The ball on the spigot end is turned and the socket seat is bored. The groove in the follower ring, in which the split ring fits, is machined, as is also the entire face of the follower ring and split ring where they bear on the rubber gasket. Bolt holes in the socket flange and follower ring flange are drilled. Standard Carson-Cadillac C-60 charcoal iron bolts with tee heads and hexagonal nuts are used, but other types can be furnished if desired.

The joint is easily assembled in the field and forms a positive lock against pulling apart. The approximate maximum deflection per joint is 15 degrees, and the joint becomes bottle-tight at maximum deflection while under pressures as high as 300 pounds per square inch. The combination of great flexibility and positive lock against pulling apart makes Usiflex joint pipe adaptable to be laid from a barge or pulled across a stream.

$145.20 PER MILE

IS THE LOW COST OF KEEPING YOUR SEWER SYSTEM OPERATING 100% EFFICIENTLY

IF

YOU HAVE AVERAGE CONDITIONS AND USE

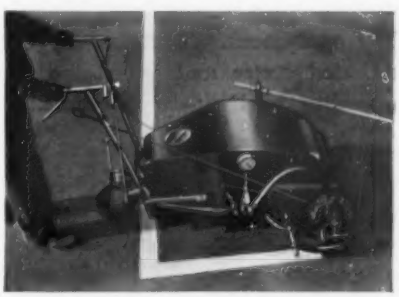
OK CHAMPION SEWER CLEANERS

THESE MACHINES EARN BACK MORE THAN THEIR ORIGINAL COST IN ONE YEAR IN SAVINGS OVER OTHER METHODS.

DROP US A LINE. LET US HELP YOU WITH YOUR SEWER PROBLEMS.

CHAMPION CORPORATION

4716 Sheffield Ave. Hammond, Ind.



M-B STREET MARKER

for All Types of Striping

Compact, self-propelling marking unit adaptable to all kinds of striping jobs, street center lines, parking lines, cross walks, safety zones, etc. Equipped with exhaust blower, adjustable paint box, spray nozzle and guide for marking. It cleans as it sprays as it brushes.

Saves 75% of Marking Costs

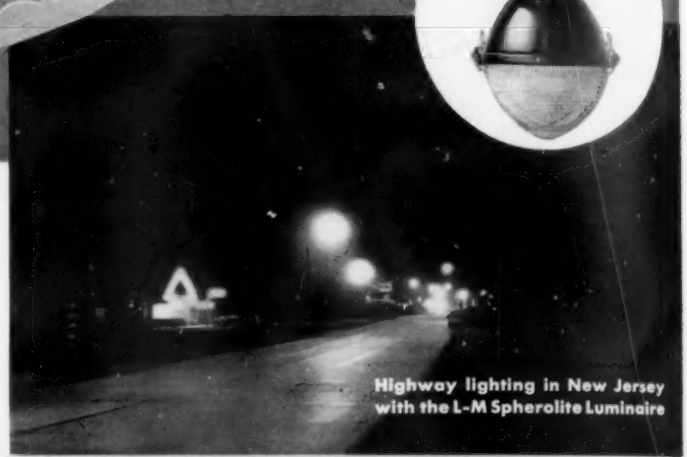
Easy, one-man, motorcycle-grip control for painting, steering and speed. No compressor required. Low initial cost. Practically no upkeep. Keeps men from dangerous hand-marking jobs. Reduces insurance premiums. Write for new Street Marker bulletin.

Meili-Blumberg Corp.
Box A-11
New Holstein, Wisconsin

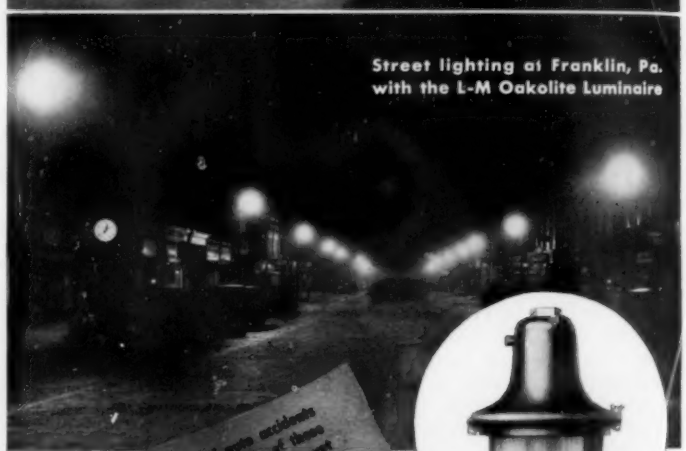
Quickly attachable hand gun for various paint spraying jobs.

MB MEILI-BLUMBERG

LIGHTING LIKE THIS SAVES DOLLARS AS WELL AS LIVES



Highway lighting in New Jersey with the L-M Spherolite Luminaire



Street lighting at Franklin, Pa. with the L-M Oakolite Luminaire

Guarding you from sudden death is only a part of the service good street and highway lighting gives. Good lighting protects your pocketbook, too. Surveys prove that losses due to traffic accidents, figured in dollars and cents alone, amount to far more than the cost of installing and maintaining efficient lighting equipment. That is why economy minded states and municipalities are speeding up lighting programs.

Line Material Company offers you Street and Highway Lighting Equipment that protects lives and pocketbooks to the fullest extent. Both driver and pedestrian see clearly under L-M Lighting; danger of fatal and costly traffic accidents is reduced to minimum. In length of service and low maintenance cost L-M lighting equipment further assures a maximum return on every lighting dollar you invest.

facts

39,500 people died as a result of auto accidents in the U. S. in 1937. 24,300, over 61%, of these deaths resulted from night driving accidents, yet night traffic in 1937 was less than ⅓ as heavy as daylight traffic.*

Good lighting giving clear visibility, prevents death and injury, saves millions of dollars in preventable accident losses.

*Figures of National Safety Council

LINE MATERIAL CO.

Outdoor Lighting

A Section of THE AMERICAN CITY
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks and the Floodlighting of Public Buildings

All-Mercury Lamps Tried Out in Belmont

By J. WATSON FLETT
Chairman, Municipal Light Department, Belmont, Mass.

LATE in 1935, Belmont made the first large installation of high-intensity mercury-Mazda street lights in the country, when 45 luminaires with 400-watt mercury lamps and 200-watt Mazda auxiliary lamps were placed in operation on heavily-traveled Concord Avenue.*

Now the city has pioneered another lighting experiment, unique for three reasons:

1. It is the first all-mercury installation to be used for highway and residential lighting.

2. It is the first installation using 85-watt mercury luminaires at the center of blocks and 250-watt units at corners. The 250-watt luminaires employ two 250-watt mercury lamps, one as a standby, while the 85-watt units use one 85-watt mercury lamp with a 100-watt Mazda lamp.

3. It is the first installation to use mercury-vapor lamps mounted horizontally in the luminaires.

The experimental 85-watt units employ only one lamp, mounted in the horizontal position. This is a high-intensity mercury lamp only 5 inches in length and not much larger in diameter than one's thumb. The 100-watt Mazda lamp also used in the luminaire is operated by a contactor relay in the transformer circuit. This lamp provides the small amount of heat necessary to start the high-pressure mercury lamp. As soon as the mercury lamp assumes full brilliancy, the Mazda lamp goes out. If the mercury lamp should fail (it has been found to average over 1,700 hours), the Mazda lamp is automatically turned on. This arrangement provides safety lighting at all times, and also acts as a signal, indicating failure of the mercury unit.

Since the mercury lamp is mounted in a horizontal position, the fixtures are equipped with special refractor bowls. The prisms of these bowls pick up the light from the highly concentrated, horizontal source and distribute a high percentage of it up and down the highway or street. While most of the prisms are designed to concentrate the light onto the street, some of them direct the light onto the sidewalk so that pedestrians may walk safely. No shields or other devices are necessary on the "house side" of the luminaires.

The 250-watt luminaires employ two 250-watt high-intensity mercury-vapor lamps, with only one lamp burning at a time. The second, or standby, lamp, lights up only in the event of momentary power interruption or failure of the first lamp.

The poles for these lights are of Union Metal design No. 5945X1 with light center at 22 feet, and are spaced 140 feet apart in staggered arrangement. All poles have a transformer base.

In all cases the 85-watt luminaires have proved more satisfactory than the 250-watt units, and it is practically impossible to detect any difference in the illumination. Fourteen of the 85-watt type units and two 250-watt luminaires are installed on Pleasant Street, which is part of Route 20 between Boston and Springfield. Coolidge Road was selected for another trial installation (four 85-watt and two 250-watt units). Other installations are on Woodbine Circle (five 85-watt units), Bright Road (four 85-watt and one 250-watt), Glenn Road (four 85-watt units) and Cushing Square (seven 400-watt). These experimental installations of mercury-vapor luminaires, developed by General Electric engineers, are a part of the planned program of modernization of the Belmont Municipal Light Department.

* See THE AMERICAN CITY, page 117, January, 1936.

Front-Page Stuff

"THOUSANDS JAM CITY AS NEW LIGHT SYSTEM IS DEDICATED WITH PARADE," said the *Morning Review* of Greensburg, Pa., the first city to relight from alley to artery. "State Police in motorcycles led the parade. . . . The American Legion band formed an escort for visiting notables, for members of Greensburg's City Council, for other city officials. . . . The city of Greensburg brought up the rear and most citizens were amazed to see what street and sanitary equipment the city possessed."

This unique installation will be described here at first hand next month.

Hinged-Door Floodlights

EASE of maintenance, relamping, cleaning or servicing results from the dust-tight and moisture-proof cover doors on a new line of floodlights for sports fields and other outdoor areas, offered by the Lighting Division of the Westinghouse Electric & Mfg. Co. The cast-aluminum door is hinged at the bottom or at the top (shown here) of the reflector, which is spun from Alclad aluminum and is either etched for a wide beam or polished for a narrow beam and then treated by the Alzak process. The same socket housing and mounting brackets are used on all Type AH floodlights, so that interchanging reflector sizes or types to meet changing applications and also economical replacement of damaged reflectors of socket housings is possible. The lenses are of plain, heavy stippled, high-transmission and heat-resisting glass.

Taylor Street
San Francisco, California
Highland Avenue
Los Angeles, California
California Cities Cast Their Vote for Modern Street Lighting—
and Union Metal Steel Lighting Standards
• A vote for modern street lighting is a vote for safety. That's why California's two great cities—San Francisco and Los Angeles—elected to install new street lighting equipment on these main thoroughfares.
Union Metal street lighting standards headed the ticket in both installations for two reasons. First—they place the high intensity luminaires at the proper height and distance over the street required for scientific light distribution. Second—Union Metal standards combine permanence with beauty. Their sturdy, all-steel construction makes for long life and low-cost service and their trim, streamlined design is a definite contribution towards improved community appearance.
Let experienced Union Metal engineers show you how your city's streets can be made both safer and more attractive through modern lighting. Their services are free for the asking.
THE UNION METAL MANUFACTURING CO.
CANTON, OHIO
Taylor Street
Design No. 40110
Height to Light Center—22'
Highland Avenue
Design No. 4156
Height to Light Center—22'

HIGHWAY LIGHTING LESSENS HEADLIGHT GLARE
HIGHWAY LIGHTING REVEALS PEDESTRIANS
HIGHWAY LIGHTING INCREASES SEEING DISTANCE

SIGNS INSTALLED ON WHITE HORSEPIKE AND ADMIRAL WILSON BOULEVARD, NEW JERSEY

THE three photographs at right, taken on the White Horse Pike and Admiral Wilson Boulevard, show 3 x 5-foot signs installed by the New Jersey Highway Department, which tell the public the values of highway lighting. Several years ago some signs appeared on a demonstration in New Jersey on Route 33 near the intersection on Route 35, about eight miles from Asbury Park. This installation was put in by the utility with the cooperation of the Motor Vehicle Department and the State Highway Department. What a change after only five years! Although the 7 x 15-foot sign above reads "Experimental Highway Lighting," the experiment is between the efficiencies of different illuminants and different manufacturers' equipment—not an experiment to determine whether or not highway lighting is practical and a life-saver. Most significant of all, the State Highway Department now pays for the experiment, and the utility gives the cooperation.

ARTHUR F. LOEWE,
Special Representative, General Electric Co., Philadelphia, Pa.

Chattanooga Tunnel Is Safety-Lighted

THE remodeled McCallie Avenue tunnel in Chattanooga has a new safety lighting system which provides adequate and proper illumination for safe seeing by day and night. This has been made possible through the cooperation of Chattanooga officials and members of the Tennessee Highway Department.

Engineers of the Tennessee Electric Power Co. and the General Electric Co. designed the illumination. Within the tunnel, 19 sodium luminaires, specially designed for tunnel illumination, are in operation. These are supplemented by 20 floodlights. During the daytime, the floodlights work in conjunction with the sodium luminaires, preparing the motorist's eyes for the change from the broad daylight to the mellow sodium light in the tunnel proper. At night the floodlights are turned off, while the sodium lights continue burning.

Governor Gordon Browning and State Highway Commissioner M. O. Allen, during a recent visit to Chattanooga, praised the new safety lights as a boon to night driving. Local citizens are favorably impressed by the mellow sodium illumination, the first in this region.

E. D. BASS,
Mayor Chattanooga, Tenn.

Yellow Light and Fewer Accidents

TWELVE accidents before and four after improved lighting is the accident record on 4½ miles of St. Paul Boulevard, at the outskirts of Rochester, N. Y. These figures for a year before and a year after were furnished to the National Safety Council by the Rochester Gas & Electric Corporation, the Automobile Club, and the Rochester Safety Council, with the statement that no decided changes in traffic volumes, speeds, enforcement or accident reporting were made during the two years. The improvement consists of 105 sodium-vapor lamps placed 230 feet apart and staggered, with 10,000-lumen lamps mounted 25 feet above pavement.

Brighter Trade and Traffic at Kingston, N. Y.

THE lighting system at Kingston, N. Y., along Routes 9W and 28, provides a "white way" at night which business leaders declare will stimulate sales. Over 270 luminaires, with 15,000- and 10,000-lumen incandescent lamps, are mounted on ornamental metal standards 135 feet apart on both sides of the thoroughfare. The Central Hudson Gas and Electric Corporation made the installation and will maintain the new lights.

Street-Lighting Experiment in England

COPIES of an English report on factors affecting visibility, such as pavement reflection and glare with different types of light sources and lighting equipment, may be obtained from the Street Lighting Department, Holophane Company, Inc., Newark, Ohio. The report is by Dr. S. English and E. Stroud, and is entitled "Some Future Experiments in Street Lighting."

Fewer Night Accidents in Syracuse, N. Y.

SAFETY lighting on 12 miles of main traffic arteries in Syracuse, N. Y., has reduced night accidents 24.9 per cent over a period of six to eight months. Outside the city limits, along nine miles of Route 11 lighted by sodium safety luminaires, night accidents have been reduced 26.1 per cent in the last nine months.

OBVIOUSLY GOOD DRIVING IN SODIUM-VAPOR LIGHTED TUNNELS

At left is San Francisco's Stockton Street tunnel, lighted by 10,000-lumen sodium-vapor lamps mounted on the walls in staggered arrangement. At right is Chattanooga's McCallie Avenue tunnel, described on this page by Mayor E. D. Bass

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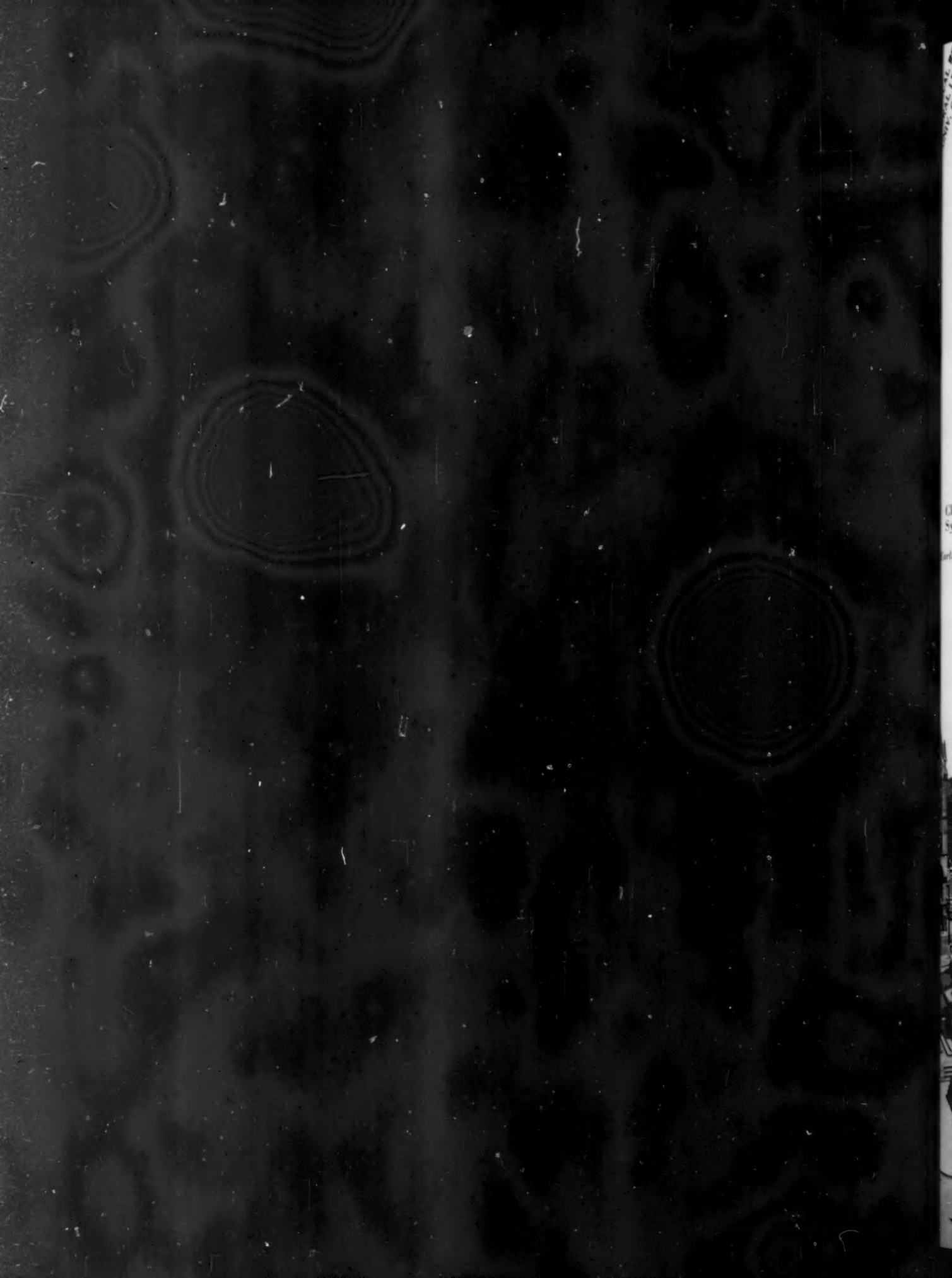

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